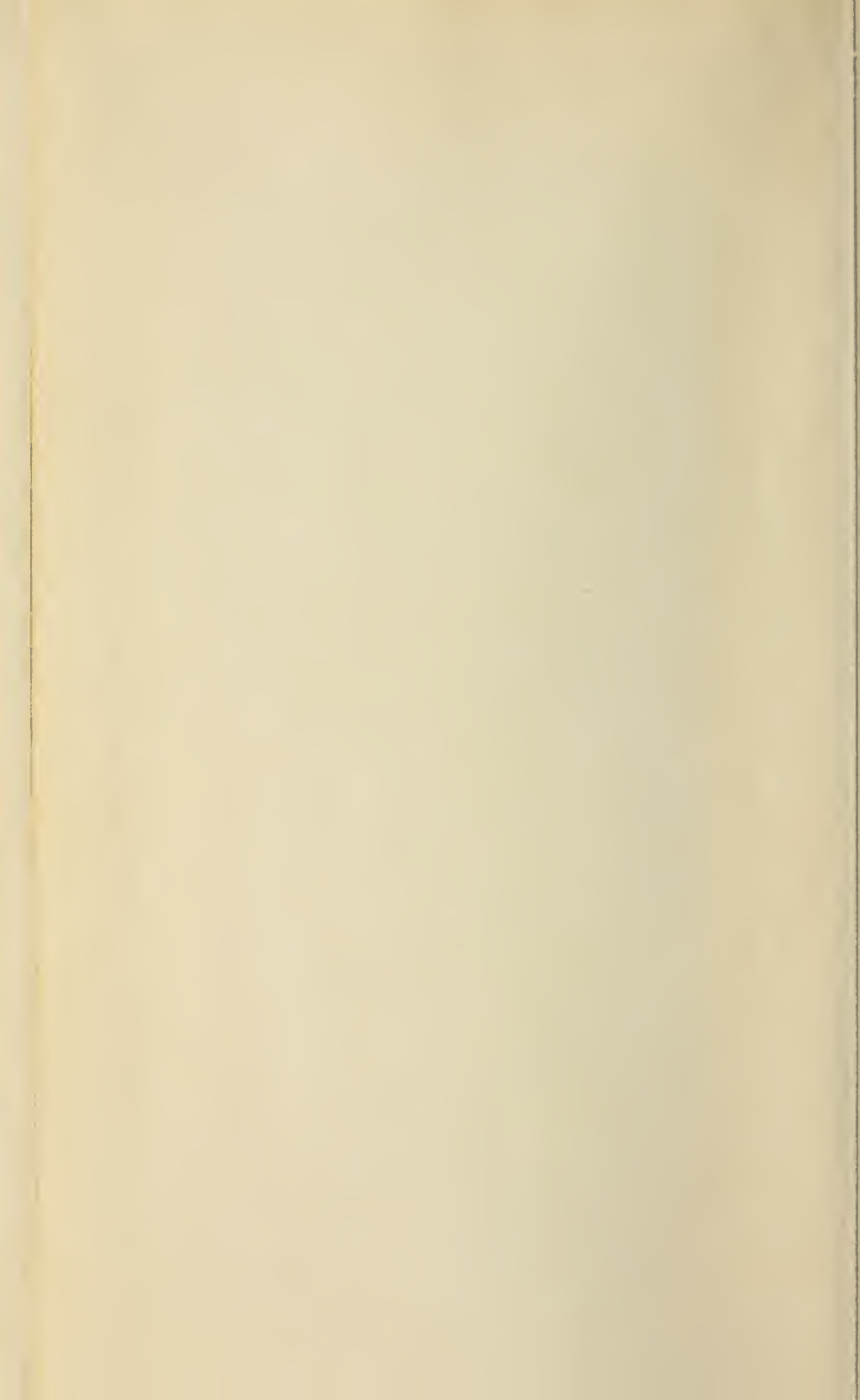
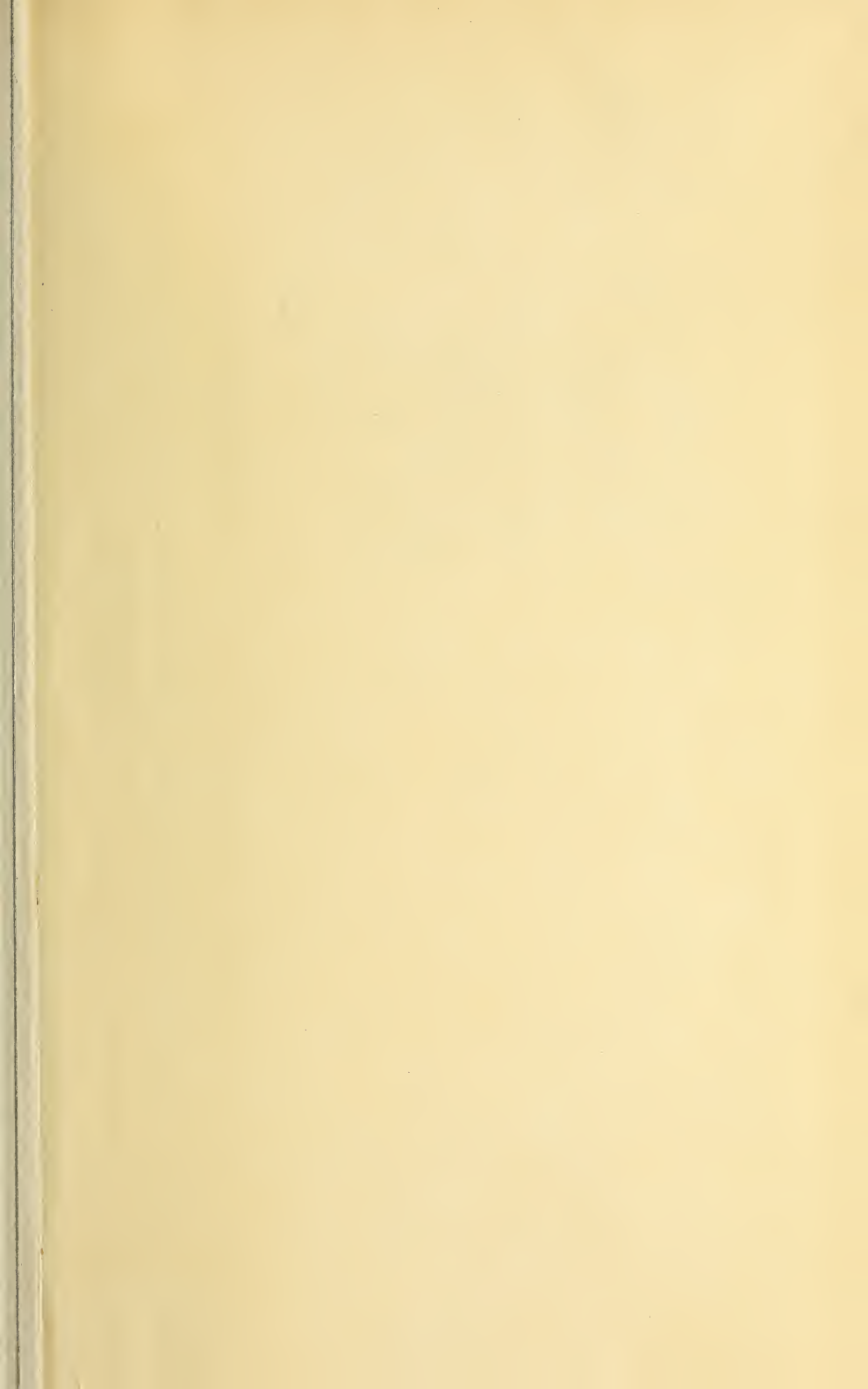
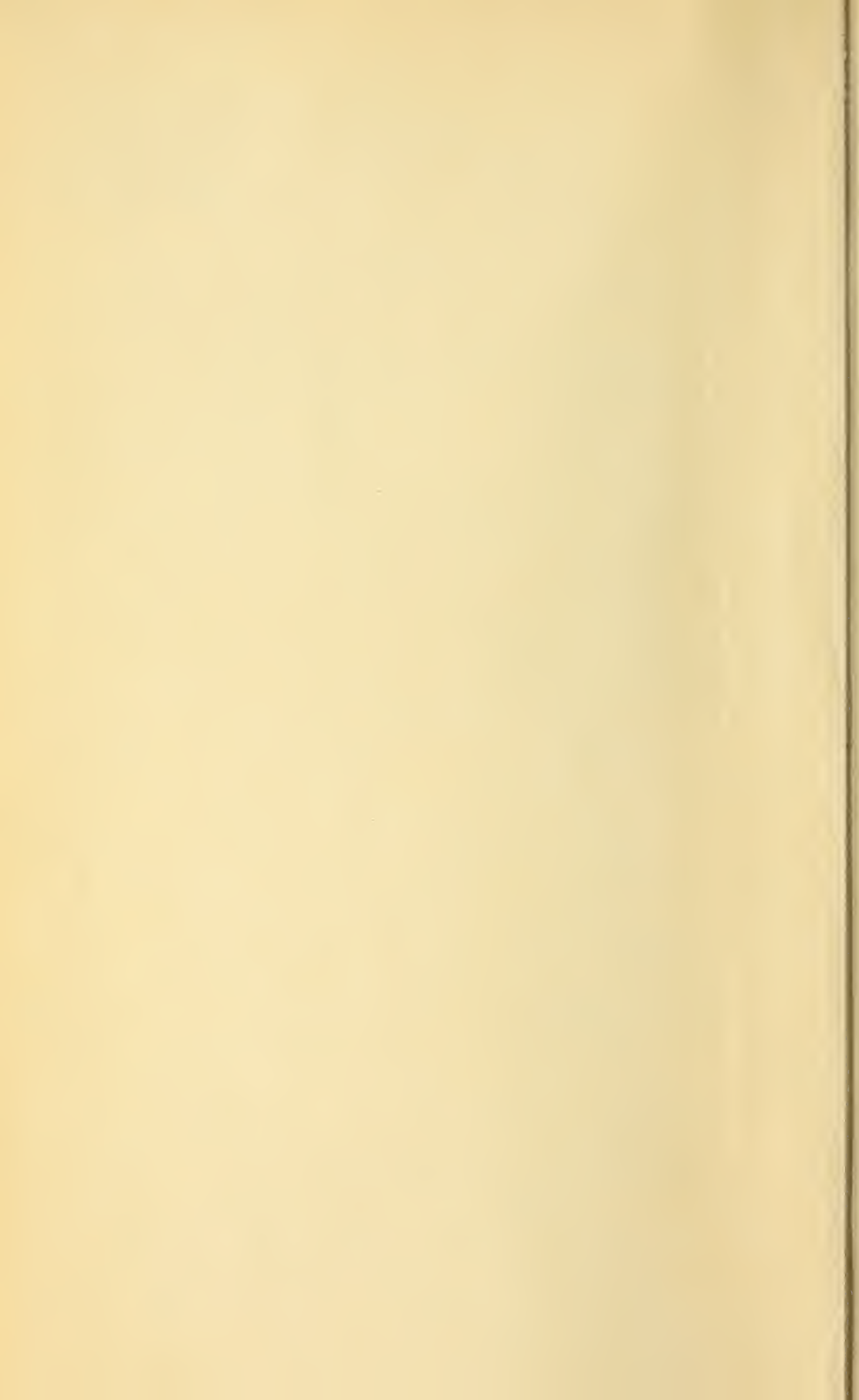


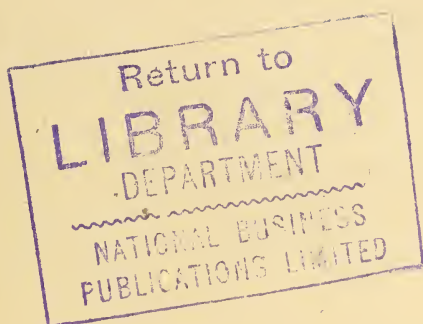
Return to
LIBRARY

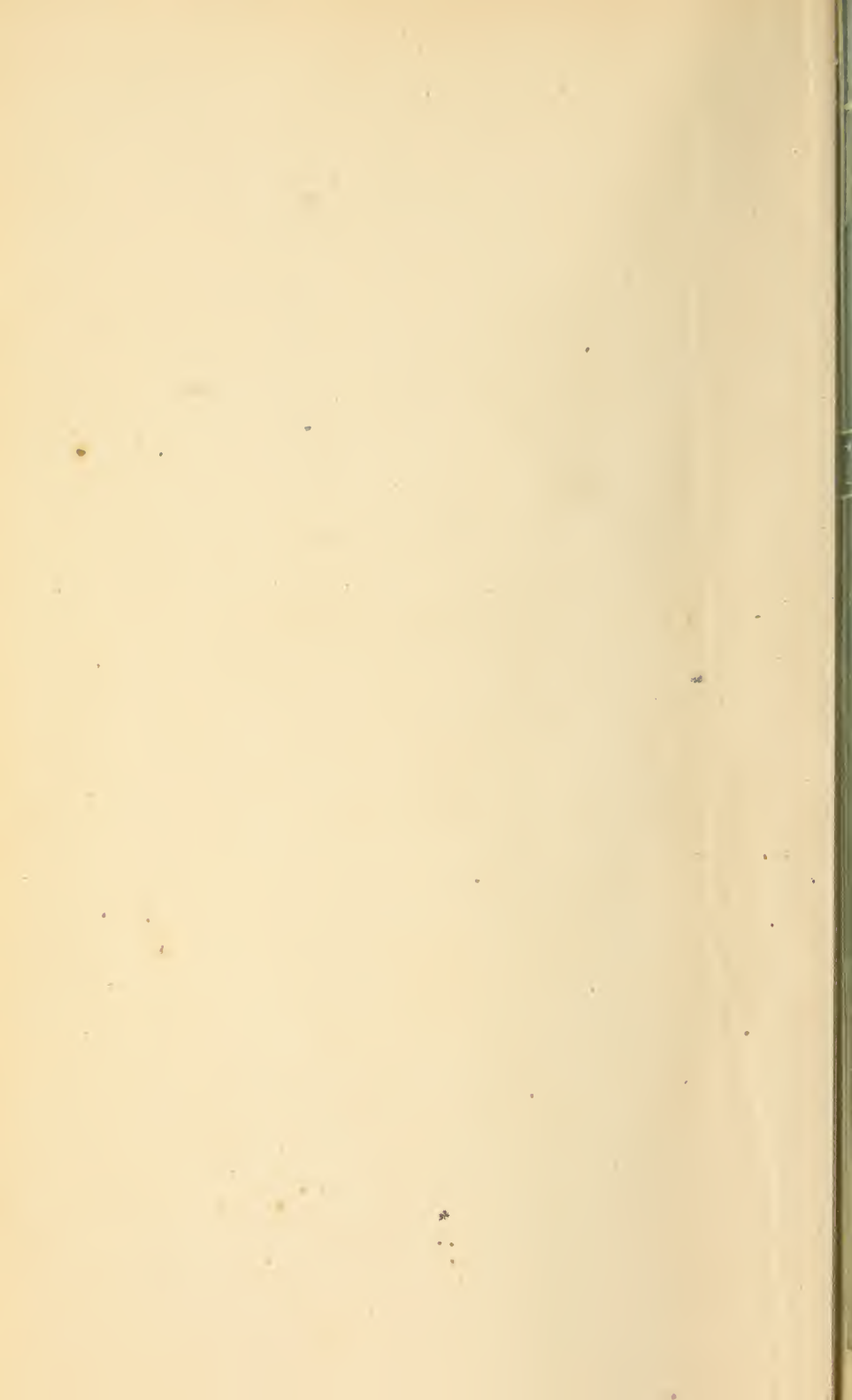
NATIONAL BUSINESS
PUBLICATIONS LIMITED











PULP AND PAPER MAGAZINE

MONTREAL AND TORONTO

VOL. 4.

TORONTO, JANUARY, 1906.

NO. 1

FEATURES OF THIS NUMBER

**The Canadian Forestry Convention
Quebec's Water Powers and the
Pulp Trade**

A Canadian Forest Policy

The Pulp Wood Business

Pulp and Paper Industry of Canada

News of the Mills and Markets

The Largest Fourdrinier Wire Plant in the World

Eastwood Wire Mfg. Co.

Belleville, New Jersey, U.S.A.

MANUFACTURERS OF

FOURDRINIER WIRES,
CYLINDER and WASHER WIRE CLOTH,
DANDY ROLLS,
CYLINDER MOULDS,
ROLLED BRASS SCREEN PLATES,
PERFECTION BRONZE (cast metal) SCREEN PLATES,
SUCTION BOX COVERS, COUCH ROLLS,
NAME PLATES,
PERFECTION BRONZE, DIGESTER CASTINGS and Y VALVES,
for the manufacture of SULPHITE WOOD PULP,
PERFECTION BRONZE VALVES, bolts and fixtures, for SUL-
PHITE PROCESS.
BRASS, COPPER and IRON WIRE and WIRE CLOTH of every
description,
BABBITT METAL and all grades of ANTI-FRICTION METAL.
BRONZE and BRASS CASTINGS, from 1 oz. to 20,000 lbs. in weight.

N. B.—We manufacture all of the above articles, and are not
merely dealers. Write for prices to

EASTWOOD WIRE MFG. CO.,

BELLEVILLE, NEW JERSEY, U.S.A.

The Largest Fourdrinier Wire Plant in the World

Foreign Phosphorbronze Fourdrinier Wires,

***Sulphite Pulps, Paper Stock and Rags,
Bleached Straw Pulp, also China Clay.***

**JEAN FREESE, Vanderbilt Building, NEW YORK,
132 Nassau Street,**

FOURDRINIER MACHINE WIRES CYLINDER COVERS

Unequalled for Strength, Smoothness and Long Life.

GEORGE CHRISTIE, LIMITED

Ladywell Wire Works, GLASGOW, SCOTLAND

**Agent—THOMAS L. PATON, 30 St. Francois Xavier Street, Montreal, who
holds stock for immediate delivery.**

**EDWARD J. WELCH, Pres. | EMMONS CROCKER, Vice-Pres. | ARTHUR S. MORSE, Secy.
ADAMS CROCKER, Treas. and Managing Director. | HENRY W. S. DOWNS, Supt.**

Union Screen Plate Company of Canada, Limited.

**Factory, Lennoxville, Que., Offices: { Lennoxville, Que.
Fitchburg, Mass., U. S. A.**

Screen Plates



**The "Union" Bronze (best phosphorized cast metal) Plates
for Sulphite Mills. The Standard Rolled Brass Plates.**

The "Union" Cast Metal Suction Plates.

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

We carry in stock a large supply of the different sizes of both metals and can fill large orders promptly.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

ESTIMATES ON APPLICATION.

KENWOOD FELTS AND JACKETS

Seamless Felts and Heavy 5x
Jackets for fast running machines
Super Fine Felts for Book and
Writing Papers. ∴ Pulp Felts
for Ground Wood and Sulphite
Pulp.

F. C. Huyck & Sons
ALBANY, N.Y., U.S.A.

BERTRAMS, LIMITED

Papermakers'

Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

F

The Newest and most Up-to-date Machinery for Papermakers,
embracing British, American and Continental Improvements.

C. H. JOHNSON & SONS, Ltd.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

F

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rolls.

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England.

Manufacturers of every description of

F

***Felts and Jackets for
Pulp and Paper Mills.***

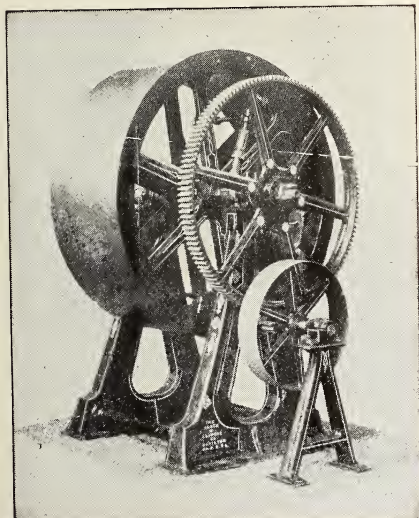
Agents for Canada : C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL.

INDEX TO ADVERTISEMENTS.

Atterbury Bros.....	41	Johnson & Sons, Limited, C. H.....	
Beloit Iron Works.....	47	Klipstein & Co., A.....	
Benson & Co., W. T.....	10	Kimball, Herbert S.....	
Bentley & Jackson.....	4	Knight & Co., John.....	
Bertram's, Limited.....	6	Lea & Coffin, and H. S. Ferguson.....	
Black-Clawson Co., The.....	7	Little, Arthur D.....	
Bredt & Co., F.....	10	McDougall Caledonian Iron Works, The	
Brunner, Mond & Co., Limited.....	50	John.....	
Canada Paper Co.....	49	McOuat & Son, T.....	
Canadian Fairbanks Co., Limited, The..	37	Paton, Thomas L.....	
Canadian Rubber Co. of Montreal.....	8	Ferrin & Co., Ltd., Wm. R.....	
Castle, Gottheil & Overton.....	9	Porritt & Sons, Joseph.....	
Cheney-Bigelow Wire Works.....	38	Porritt & Sons, Limited, Samuel.....	
Christie, J.....	50	Porritt Bror. & Austin.....	
Christie, Limited, George.....	3	Pringle & Son, T.....	
Cousland & Co., A.....	10	Pulp & Paper Trading Co., The.....	
Davis & Co., F. H.....	42	Pusey & Jones Co.....	
DeCew, J. A.....	9	Quebec & Lake St. John Ry.....	
Eastwood Wire Mfg. Co.....	2	Smith Co., S. Morgan.....	
Emerson Mfg. Co.....	37	Sullivan & Co., C. F.....	
Fischer, Julius.....	46	Union Screen Plate Co.....	
Freese, Jean.....	3	Union Sulphur Co., The.....	
Greening, The B., Wire Co., Limited.....	46	Vogel, C. H.....	
Hardy, George F.....	9	Wallace-Jaastad-Drewsen.....	
Hawthornth & Sons Co., Limited, Alfred..	12	Waterous Engine Works Co., Ltd.....	
Hay Knife Co., Limited, Peter.....	38	Wertheim & Co., A.....	
Hough, R.....	50	Whittaker, Richard.....	
Huyck & Sons, F. C.....	5	Wilson, Paterson & Co.....	
International Pulp Co.....	9	Winn & Holland.....	
Jenckes Machine Co., Limited.....	12 & 48	Wurster, Dr. C.....	
		Young, J. S.....	

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.



Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

from new patterns and de-
signs embodying the latest
improvements.

Foot-power Perforators.
3 Roller Ink Mills.
Evaporating and Drying
Machinery.

We Solicit Correspondence.

To the Trade

At the end of January we are issuing a 12 sheet 22" x 15" Calendar for the ensuing 12 months.

It's somewhat different to anything hitherto published or distributed by a Rubber Company in the Dominion.

We've planned it for practical men. It's got big date figures—large enough to read without glasses, and shows banking and other holidays scheduled in the Dominion.

Primarily it's a Rubber production. And a good one.

On every sheet are illustrations of our many and varied products in Rubber.

And the "date" feature is so prominent and practical that you'll keep it to the last sheet—the twelfth month—and feel that you're not doing us a special favor—'cause it's something that **you** want. It's a calendar with "mutual" features.

We've issued many thousands of these Calendars, all done up in cartons ready for mailing.

All our Sales Branches have large supplies. A postal to our Branch Offices will bring a Calendar (or several of them) to your desk. **Write to-day.**

**THE CANADIAN
RUBBER CO.
OF MONTREAL,
Limited**

"LEADERS and ORIGINATORS"

HALIFAX MONTREAL TORONTO
WINNIPEG VANCOUVER

D. LORNE MCGIBBON, General Manager

—According to a report just published by the Foreign Office, there is at the present time an unusual shortage of raw material among the paper manufacturers of Germany. With the increasing demand throughout Europe for paper, the forests hitherto untouched, are being exploited for the supply of suitable material. Much has been heard of recent proposals to utilize the vast tracts of woodland in Newfoundland, and covetous eyes are also turned to the forests of Western Canada and Australia. While the available districts in Europe are limited, a French company is reported to be contemplating the erection of extensive works for the production of wood pulp in the Spanish Pyrenees, while on the other hand the authorities in Finland are taking measures to restrict the devastation of that country. In Scandinavia, too, where the forest lands have long been in the hands of paper producers, there is a suggestion that a limit will have to be set sooner or later to the clearing proclivities of the insatiated manufacturer. The modern newspaper is indeed a devouring monster, and the proposals to make paper from esparto grass and other materials is welcome, seeing that by such means the world's forests may be saved from destruction.—"Pall Mall Gazette."



This Railway runs through **Two Hundred Miles of the Finest Spruce Forests in America**, through a country abounding in **Water Powers** suitable for **Pulp and Paper Mills** and other industries, and of easy access to the **Steamship Docks at Quebec.**

ALEX. HARDY,
G.F. & P.A.

J. G. SCOTT,
General Manager

QUEBEC, P. Q.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT and ENGINEER
SPECIALIST IN
Pulp and Paper making. F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
101 Tremont St., Boston, Mass.

Designs, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and Pyrites Burners for the Sulphite Process. F

GEORGE F. HARDY, M. AM. SOC., M.E.
M. CAN. SOC. C.E.
Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of Mill Properties, Water Power Developments.
Mutual Reserve Building, - 309 Broadway,
NEW YORK.

"Asbestine Pulp" Filler

Superior to any Clay.

Delivered price on application.

INTERNATIONAL PULP CO.

New York City, U.S.A.

T. PRINGLE & SON

Specialties:—Pulp Paper and Fibre Mills,
Hydraulic Developments and Electrical
Transmissions

409, 410, 411, 412 Coristine Bldg.,
MONTREAL. F

C. H. VOGEL

A. M. Can. Soc. C.E. **ENGINEER**
OTTAWA, CAN.

WATER POWER
Paper, Pulp and Sulphite Fibre Mills

LEA & COFFIN,
and H. S. FERGUSON,
ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
Water Power Development and Trans-
mission. Steam Power Plants.

CORISTINE BUILDING, MONTREAL.

The Black-Clawson Company, Hamilton, Ohio, report the past year as one of the best in the history of their business. With the completion of their new machine shop a few months ago they now have one of the finest paper machine works in the world.

J. A. DeCew, B.A.Sc.

Consulting Chemical Engineer

CHEMICAL INSPECTION
ENGINEERING ANALYSES
PAPER AND PULP TESTING
TECHNICAL RESEARCH

CHEMICAL INSPECTOR FOR
STANDARD INSPECTION BUREAU, LIMITED
OF CANADA.

14 Sun Life Bldg., MONTREAL

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

CHINA CLAY **ROSIN,**

Best Paper
Makers' Strained

Bleaching Powder. Soda Ash.

Ultramarine Blue.

STARCHES—*Highest Grade Pearl
and Potato.*

FT

W. T. BENSON & Co., 164 St. James St., Montreal.

JOSEPH PORRITT & SONS, HELMSHORE NEAR MANCHESTER **FELTS**

and JACKETS FOR PULP and PAPER MILLS

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes

Agents for the States and Canada,

REGISTERED.

TRADE MARK.

F. BREDT & CO., - 240 Water Street, NEW YORK.

FOURDRINIER WIRES, *Cylinder Covers, Etc.*

A. COUSLAND & CO., GLASGOW
WIRE WORKS, GLASGOW, Scotland.

C. F. SULLIVAN & CO. IRON AND COPPER MILL WORK

MANUFACTURERS OF THE
SULLIVAN PULP OVEN.

WRITE FOR PARTICULARS

36 Main Street, HOLYOKE, Mass., U. S. A.

A. KLIPSTEIN & CO.

17 Lemoine St., Montreal

**Sulphate
Alumina**

China Clay & Bleaching Powder

**Ultramarine and
Aniline Blues**

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK,=====MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y

127 BOARD OF TRADE BLDG., MONTREAL.

AGENTS FOR THE UNITED ALKALI CO. OF ENGLAND

OFFER TO THE TRADE:

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.

F



VIM LEATHERS

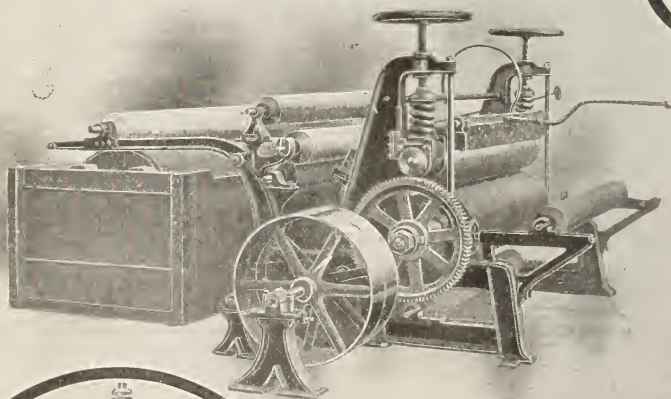
Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature, or Oil, and make the finest CUP FLANGE and U PACKINGS — for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leathers. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Hawksworth & Sons Co., Limited,

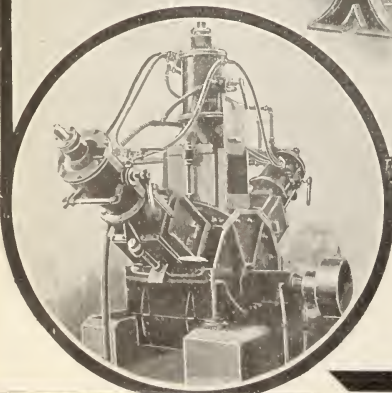
Mill Engineers and General Furnishers,
551 St. James Street, - Montreal.



Jenckes Eng. Co.

The JENCKES Machine
Company, Limited,

117 Lansdowne Street,
Sherbrooke, Que.



THE PULP AND PAPER MAGAZINE OF CANADA

VOL. 4.—NO. 1.

TORONTO, JANUARY, 1906.

{ \$1 A YEAR.
{ SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade issued between the 15th and 20th of each month.

SUBSCRIPTIONS: Canada, Great Britain and the United States, \$1 a year; to Foreign Countries, 5s. a year.

Changes of advertisements should be in the publishers hands not later than the 10th of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

E. B. BIGGAR,
PUBLISHER

80 CONFEDERATION LIFE BUILDING, TORONTO,
CANADA.

THE FORESTRY CONVENTION.

The convention which took place at Ottawa this month marks an epoch in forestry education in Canada, and the great attention given to it by the press of every province leads us to expect that our public men and the leaders of thought will not be long in grasping the essential elements of the problem. Every member of parliament and every teacher in Canada ought to be grounded in the main facts and to comprehend that all departments of our industrial life, all the resources of the soil depend on the conservation of the forests. As an educational movement the convention

was remarkable in presenting so many aspects of the forestry problem in so clear a light. The American visitors, with the sympathy of true scientific foresters, contributed much to the enlightenment of the convention, and they paid Canada the compliment of saying that the papers and discussions were on a high plane, and were equal in merit to those presented at the forestry convention at Washington last year. For these reasons it would be well if, in addition to the full report which will be published in pamphlet form, a summary of the facts and arguments contained in these papers is prepared for circulation among the schools of every province, and to all literary and other societies whose purposes are the enlightenment of the people. This would be carrying out on a comprehensive scale the suggestion made by Monsignor Laflamme in his valuable paper dealing with the needs of the Province of Quebec. The subject could be taken up as a special topic on certain days in the schools and particularly on Arbor Day.

An encouraging feature of the convention was the keen interest taken in the subject by Lord and Lady Grey. His Excellency showed that he appreciated

the gravity of the issues that hung upon the forests of Canada, and his personal observations on the dire effects of forest destruction in Eastern lands gives weight to his counsel to the people of Canada. We hope and expect that those responsible for the forestry legislation of this country will act, not as if they were living for to-day, but as if they were founding an empire.



A SOURCE OF WEALTH FOR QUEBEC.

In her water-powers the Province of Quebec possesses a source of wealth, the value of which, if rightly used, will be almost beyond computation. Besides the direct motive power for manufactures of all kinds, the water-powers of Quebec could generate electricity to run all its railways, all its smaller manufacturing establishments, could supply cheap light to all its cities, country towns and villages, and smelt a great portion of the variety of valuable ores to be found nearly in every district. The great problem of substituting electric for steam traction on railways is practically solved, and the only point which remains to be decided is the cost at which electricity can be transmitted to the remoter sections of the country. In most parts of Quebec electricity can be produced by water-power at less than half the cost of steam power.

By far the largest and most numerous powers are to be found in the section of the Province lying north of the St. Lawrence. The opening of the section of the national transcontinental railway extending from the city of Que-

bec to Lake Abitibi will procure accessibility to many of those large water-powers, and will impart to them a great value. The great falls and cascades of the Bell and St. Maurice rivers will afford golden opportunities for the erection of mills wherein to grind the wheat brought from the Canadian North-West by the new railway. They will also afford good chances to start other factories of all sorts to supply the growing demand of the wealthy North-West for manufactured products, and one need not be a prophet to predict a great industrial movement in that section of the Province of Quebec, where manufacturing towns and villages will rise as by magic.

But the most important of those industries will be the manufacture of pulp and paper. Spruce, of the very best quality for making paper, abounds in that section of the Province; the water-powers are also abundant; the railroad will procure a good means of cheap transportation, which is equivalent to saying that the three great requirements necessary to secure success will be enjoyed in that direction by the pulp and paper industry.

Will that great source of wealth be protected in order to make it permanent? Great fears may be entertained in this respect if the present administration follows in the footsteps of its predecessors. At several places in the Eastern Townships and the Beauce district the indiscriminate granting of lands for colonization purposes has caused the denudation of the country at the headwaters of the rivers, which, thus deprived of their natural reservoirs, have been transformed into intermittent streams — torrents in the

spring, spreading ruin and devastation all along their courses, then drying up in summer, and not retaining enough of water to supply a regular power to the mills. The same thing happened on the Riviere du Loup, at Fraserville, where a pulp mill, erected at a great cost, had to be closed and abandoned for want of sufficient motive power during the summer months.

The Government of Quebec has a great task to accomplish in protecting the Province against further disasters of this kind, and this task consists in establishing forest reserves at the head of all the principal rivers, particularly south of the St. Lawrence. The St. Maurice also deserves a special protection in this respect, and its headwaters, as also those of its main tributaries, should be protected by large forest reserves, in order to maintain a sufficient and constant flow of water during the dry summer months. Security in this respect would double the value of the water powers on this river, and it would be a great inducement to the establishment of manufactures.

On the firmness and statesmanship shown by the present administration depends the future welfare of Quebec and the development, not alone of its manufactures in general, but of its agricultural and other resources, as shown in the paper printed in this issue treating of the pulp and paper industries. In short, the very life of the Province depends on its water-powers, and the water-powers depend on the treatment of its forests. Never has statesmanship of the highest order been needed in Quebec so much as now. All friends of the Province will earnestly pray that it may soon be manifested.

Pulp & Paper Currency

The "World's Paper Review" says that the recent reports to the effect that Canadian pulps were being offered on the French and British markets at prices 5s. per ton below Scandinavian prices are attributed to the action of speculators, who, it was maintained, wished to depress the market.



John MacFarlane, of the St. Raymond Paper Co., Montreal, reports as the result of his observations in England and Europe recently, that Great Britain and the Continent form a market that will stand at least 500,000 tons of Canadian pulp per annum. It only requires that the Canadian pulp makers improve the quality of their product in order to obtain and to keep this market, and to extend it by supplying pulp to Japan, India, Australia, and other countries of the eastern hemisphere which are developing a paper industry.



The paper by Mr. Price on the pulp-wood industry of Quebec, read at the forestry convention, is a valuable contribution to a subject of absorbing interest in that province. The pulp and paper manufacturers cannot, of course, view the question from the same standpoint taken by members of the pulp-wood association, who are only interested in the sale of pulp-wood. If this matter is looked at from the standpoint of the citizen who regards the interests of the whole country, and not a particular trade, then the present methods of stripping pulp lands are to be deprecated for the effect they will soon have on the industrial and agricultural situation in the Eastern Townships. If the question is regarded from

the standpoint of the pulp and paper manufacturers of the province, then the operations as now carried on are equally to be lamented, for the reasons stated in the paper on the "Pulp and Paper Industry in Canada." Are they in the best interests of the pulp dealers themselves? If a native pulp and paper industry consuming the quantity of pulp-wood now exported, requires an annual wage bill equal to more than the total value of the raw wood now shipped out of the country, will the pulp-wood dealers not be better off with the creation of such a market for their wood at home? The home market is generally preferred to the foreign market, especially in protected countries. These are questions for the pulp-wood dealers to think over afresh. Apart from Mr. Price's conclusions, he is to be congratulated on the presentation of an instructive paper.



Hon. Frank Cochrane, Minister of Lands and Mines for Ontario, states that a new and economical policy with regard to disposal of pulp-wood concessions will be adopted by the Provincial Government in the near future. The conservation of this important national product was strenuously advocated by the present Premier, Mr. Whitney, when in opposition, and it is probable that his views will be carried out along the lines of giving smaller areas of pulp lands to holders of concessions and the selling of rights by public auction instead of by private sale.



From the reports of the Provincial Crown land agents, Toronto, it is estimated that the aggregate timber cut this

season will be 800,000,000 feet board measure; that 125,000 cords of pulp-wood will be taken out, and 2,500,000 railway ties. Last season 1,986,000 railway ties were actually cut. The great amount of railway construction now in progress has made the demand for ties very brisk. The estimate of the timber cut is larger than at the corresponding period of last season, the actual cut of which is not yet obtainable.



The exportation of pulp-wood from certain portions of the Eastern Townships and from more interior sections of the Province is continued at a headlong pace that almost amounts to recklessness, says the St. John's "News and Advocate." It is to be feared that many land-owners and speculators are killing the goose that lays the golden egg. Pulp-wood cannot be reproduced at will any more than tanbark can, but pulp-wood forests are denuded to-day as recklessly as hemlock tracts were stripped a generation or two ago.



The announcement that new and economical pulp-wood legislation will be introduced by the Ontario Government at the coming session of the Legislature is taken to indicate that Premier Whitney intends to abolish the old methods of private pulp-wood concessions, which he so strenuously opposed while in opposition. It is well known that, while the late Government placed certain restrictions on limit-holders, these restrictions were not carried out to the letter, nor was any enforcement of them threatened. In addition to the other public disadvantages of the old method of dealing out pulp-wood con-

cessions, the greatest wrong of all lay in the fact that these concessions were too large. Mr. Whitney takes the stand that large tracts of land are not necessary for the business of any company; and it is believed that the future legislation, besides enacting that all limits will be disposed of to the highest bidder at public auction, will considerably reduce the size of the limits. In this way Ontario's pulp-wood resources will be rightly conserved. It is all well enough to talk about an inexhaustible supply of pulp-wood when there are conditions properly regulating the use of it, but under ordinary circumstances, and without the most stringent restrictions Ontario's resources would disappear as fast as did the "inexhaustible supply" of the United States. And our American neighbors only woke up to the situation at the eleventh hour. They are losing no time, however, in arranging for the future. Nearly every day we read of American syndicates securing, or endeavoring to secure, tracts of pulp-wood lands in Quebec and the Maritime Provinces, and it is high time the Governments of these Provinces took early steps to preserve their pulp-wood resources, and to introduce a policy that will materially help their forests rather than destroy them altogether. In this connection it may be stated that the Ontario Government has announced that there will be no public sale of timber limits this year.



EXPORTS OF GERMAN "NEWS."

Manufacturers of German "news" are well organized, a cartel being formed by twenty-nine of the principal mills in 1900 for a term of five years, which has now been renewed for another five

years, the number of mills associated now being thirty-seven, and only a very few remain outside of the cartel. With the extensions going on and contemplated the mills will from and after the year 1907 be able to produce annually 190,000 tons. When the home market practically absorbs production, the United Kingdom is free from serious dumping; but should the home demand fall off, then the surplus is offered for export from 10 to 15 per cent. less than the home trade price. Sir Joseph Lawrence, M. P., in presiding over a recent meeting at which a paper was read by Mr. J. Agan Baugh on "German Competition," said that in 1902 M. Raffalovitch, the author of the important work on "Trusts, Cartel, and Syndicates," stated, on the authority of the Prussian Minister of Commerce, that there were 450 syndicates in Germany. These associations, or cartels, in many cases gave to such of their customers as wished to export, a premium equal to the difference between the price they could get in Germany and the lower price at which they sold to outsiders. Since 1902 he (Sir Joseph Lawrence) knew of instances where many of these powerful firms, especially in the electrical engineering trades, had again combined among themselves. The capital represented by these latest combinations was very formidable, and it was almost impossible for English manufacturers in such trades as electrical engineering to break through the cast-iron arrangement by which these German trusts not only keep the command of their own market, but were becoming an almost irresistible power in neutral markets. It was a poor look-out for English electrical manufacturing firms who had to combat a three-fold disadvantage, viz., customs dues, patent laws, and cartels. All the education and skill in the world could not alone overcome these barriers. Their effect was felt in the lessened opportunities of work for our own workpeople.—"World's Paper Trade Review."

A Canadian Forest Policy

A Paper Before the Canadian Forestry Convention by Dr. Judson
F. Clark, Chief Forester, Province of Ontario.

When an individual or a nation is urged to undertake any new enterprise, the advocate must be prepared to show that it is not only practicable and desirable, but that it is a business proposition, or in other words, that it will pay. That there are sentimental considerations urging better care of the forests is undeniable. That they should have weight is equally indisputable. But forestry is absolutely independent of such, its appeal to-day is as a business proposition to business men, and more especially as a business proposition to statesmen, for the whole history of forests and forestry from the time of ancient Babylon to the present has been a demonstration of the fact that the State is the best, if not the only good forester.

The development of a rational, and therefore, practical, and business like, forest policy by the Canadian Provinces and the Federal Government will have a greater influence on the prosperity and happiness of our country half a century hence than the solution of any other problem which is within the power of our generation to solve.

There are at least three reasons of paramount importance why Canadian forests should be managed with a view to the production of wood crops in perpetuity. These reasons have already been repeatedly discussed at the different sessions of the Convention. Permit me to repeat them briefly by way of emphasis and as a foundation on which to base some recommendations for a national forest policy.

For the Permanence of Lumbering Industries.

1. The necessity of a permanent supply of logs for the maintenance of our great and growing lumbering and other wood-working industries. The products of these industries are absolutely essen-

tial for the future of our production, our transportation and our manufactures. Aside, indeed, from the character of its people there is nothing which contributes so greatly to the prosperity and happiness of a people than an abundant supply of wood at reasonable prices. Wood forms the very cornerstone of modern industrial life, and as years go by modern, civilized man demands and uses more and more wood, all substitution by iron, steel, cement, etc., to the contrary notwithstanding.

There are some who are better acquainted with the forests than the markets, and others who are acquainted with neither forests nor markets, who still believe and speak of Canada's "inexhaustible" forests. Take any man through a 400,000-acre lot of fine forest so thoroughly that he will have seen all the trees, and it is most likely that he will be ready to believe in inexhaustible forests. Tell him then that all the trees he has seen would hardly supply the needs of the railways of North America for cross-ties for a single year, and his "inexhaustible" will appear as futile as it is. We have great but diminishing forests, and great and ever growing needs for forest products.

For the Conservation of Stream Flow

2. Second only in importance to the function of the forest as a producer of wood is its function as a regulator of the flow of streams.

Canada's wealth in her water power is very large. Some one has estimated that two-fifths of the water powers of the world are found on Canadian soil. Whether this be correct or not, there is no doubt but that the water powers of Canada vastly excel those of any other nation. What this will mean for her industrial future it is impossible to forecast, perhaps impossible to exaggerate. Add to this the value of the streams for

irrigation, domestic use, and navigation, and who would dare guess how many figures would be required to express the value of Canada's streams a century or even half a century hence if maintained in their present efficiency? If the forest lands of Canada be placed under a rational forest management, the present efficiency, by which I mean, of course, the regularity of her stream flow, may not be maintained only, but much increased. Present methods of lumbering with their accompaniment of fire on the lumbered lands are annually, and to a large extent, permanently, subtracting from the value of this great national asset.

For Public Revenue.

3. A third reason for conducting lumbering operations on non-agricultural lands with a view to improving and perpetuating the forests is found in the fact that it is only by maintaining such lands under forest crops that they can be made to permanently contribute to the wealth of the Provinces of the Nation. Compared acre for acre with arable lands, these rough lands have a low producing capacity. The vastness of the area involved, however, places the non-agricultural lands of Canada in the front rank of her natural resources. Not only is it a great national duty born of necessity—the necessities of the future—that Canada care for her forests, but it will inevitably prove a highly remunerative business proposition.

Forest Situation in North America.

North America to-day cuts three-fifths and consumes more than one-half of the total lumber production of the whole world. This prodigious consumption is very rapidly increasing both on account of an increase in the per capita consumption and the consuming population. There can be no manner of doubt that the present annual cut, together with that destroyed by fire, vastly exceeds the net annual production by growth. In other words, a wood famine in North America is already in

sight. I was asked the other day when it was due to strike. I replied that as near as I could interpret the signs of the times, the year 1900 would be about right, and that the pressure of prices was likely to become increasingly burdensome from decade to decade until the famine would be unanimously admitted. I understand that many purchasers of lumber are already admitting it.

Canada's Advantageous Position.

Canada will, if she be wise, be more interested in this wood-famine as a seller than as a purchaser, and herein lies the possibilities of a great and ever-growing revenue from her public forest lands. The Canadian forests, which form beyond question the world's greatest remaining reserve of coniferous timber, form a band across the continent from the Atlantic to the Pacific, bordering the richest farming and manufacturing area in the whole world. The population of the consuming area tributary to our forests has increased four-fold during the last half-century, but its wood consumption has increased ten-fold. This marvellous increase in the use of forest products has already established stumpage prices which put national wood culture on a satisfactory financial basis from the standpoint of revenue alone. It should not be forgotten that the rise in prices which has made forestry a business proposition has come about in the face of an exploitation of the forests on both private and public lands such as was never seen elsewhere in the history of lumbering and cannot be again repeated in North America nor on any other continent.

The territory tributary to our Canadian forests, which increased its wood consumption ten-fold during the past half-century, is to a very large extent merely on the threshold of its industrial development. Nothing is more certain than that the present demand for the products of our forests will be indefinitely maintained—nothing more probable than that it will be greatly increased. In

view, then, of the desirability of caring for the forests as a sound business proposition from the standpoint of direct financial returns, and its necessity from the standpoint of wood production and water conservation, I submit that no time could be more opportune than the present for the inauguration of a national forest policy, having for its object the conservation of the forests by wise use.

Forest Protection.

In this forest policy first place must of course be given to forest protection, and more particularly to the prevention of forest fires, for without reasonable safety in this regard there can be no forest management. Considerable progress has already been made by several Provinces in this matter, but every where much remains to be done. Further progress is needed along three lines, namely: (A) Improved fire laws; (B) More efficient administration of the fire laws, and (C) the disposal of debris incidental to lumbering operations.

Nova Scotia has at present the best fire law (though it is in some respects surpassed by that of New Brunswick) and Ontario the most efficient administration.

Practicability of Disposing of Debris.

In the report of the Ontario Bureau of Forestry for 1904 I have discussed in detail the practicability of burning the debris incident to lumbering operations in pineries. I shall only repeat here that it has been demonstrated that a good clean job of brush burning may be done on pine lands at a cost varying according to local circumstances of from 12 to 25 cents per M. feet board measure, of the timber cut. Whether a similar burning of the brush on spruce lands be also practicable has not yet been demonstrated by any fair test on a commercial scale. I submit, however, that the making of such a test is one of the most urgent duties of the Provinces selling pulp-wood stumpage. It will pay any

Province vastly better to take five, or if necessary, fifteen cents less per cord for its pulp-wood and secure the safety and the advantage of reproduction which goes with the burning of the debris, than to secure the utmost present cash return and leave the areas cut over for pulp-wood in the deplorable and menacing condition which is to-day characteristic of Canadian pulp-wood slashings.

It need scarcely be added that the state rather than the lumbermen should in all cases bear the expense of such safety measures, for it is in the interest of the future citizens of the state that they are undertaken.

Woodland Taxation.

Forest taxation is, next to fire protection, the most important consideration in planning forest management on privately owned lands. Governments have in their control of the method and amount of taxation a powerful lever to foster or destroy the practice of forestry by private owners. Under normal conditions no woodland owner can be exempted from a fair and equitable share in the burden of government. Where, however, the tendency to deforest reaches the point where the general interests of the community are endangered, the partial or complete exemption from taxation of such woodlands as are devoted exclusively to forest purposes and come up to a reasonable standard of production may be resorted to as a remedial measure; or the taxation may be shifted from an annual tax on the lands to a stumpage tax on the annual cut, thus converting the tax itself into a measure of restraint as regards deforestation.

Classification of Public Lands.

An important feature of a Canadian forest policy must be the exploration and classification of the public lands. Such lands as contain a satisfactory proportion of good plow lands and are reasonably accessible to markets should be opened for settlement, as the land is

required for agricultural development. Townships, or larger areas in which the non-agricultural lands predominate, should under no circumstances be opened for settlement, but should be constituted Provincial or Federal forest reserves, and be devoted to timber production in perpetuity. Just what proportion of plow land contained should entitle a township or district to be classed as suitable for agricultural settlement is open to debate. In deciding this point it should be kept clearly in mind that a mistake in choosing too high a standard for the agricultural lands may be subsequently remedied at any time without embarrassment or loss, while the mistake of opening up for settlement lands unsuited for agriculture is certain to be a great and lasting injury to both settler and Province, and is well nigh irremediable, as witness many townships in Muskoka, Haliburton and elsewhere.

Municipal Forest Reserves.

A second class of forest reserves which the Provinces would do well to foster is what may be termed Municipal Forest Reserves. There are many townships having within their boundaries considerable areas of waste lands which after trial have been abandoned as unsuitable for growing field crops. The only hope of restoring such lands to useful production is by reforestation, and there are many good reasons that may be urged for the undertaking of the enterprise by the local municipality. It would be good policy for the Provinces to assist such municipalities as are willing to establish municipal forest reserves by advancing the money for the purchase of the lands and by organizing an efficient forest service for their management. In the course of time, varying from 15 years in the more southern parts, to 30 or 35 years in northern districts, the townships would be in receipt of a steady and very considerable income from their municipal forests for the

easement of local taxation. There are many municipalities in Europe having no higher price for forest products than obtain in Western Ontario to-day whose income from such municipal forests pays the entire expense of maintaining schools, roads, and other local improvements, and in not a few cases there is a surplus which is annually divided as a cash bonus among citizens. Such a system of municipal forest reserves could with the utmost advantage be extended to the newer districts where townships are being opened for settlement. All that would be necessary would in this case be to select and reserve from location at the time of the survey a suitable area in the part of the township least adapted for agriculture. Such reserves being already stocked with merchantable timber, would be capable of yielding a revenue to the municipality from the first.

Practical Forest Management.

The central feature of a forest policy and that which gives real worth to all the rest is, of course, the introduction of a system of practical forest management, having for its aim the perpetuation and improvement of the forest by judicious lumbering. Canadian forest management will naturally differ widely from European forest management, for our forests, our transportation, our markets and our people all differ widely. It will also differ somewhat from the forestry of our neighbors to the south, for there are characteristic Canadian conditions to be met—not the least of which is the radical difference in forest ownership and the relations existing between the lumbermen and the State. Canadian foresters may, of course, learn much from the foresters of Europe, and will doubtless learn much more from those of the United States, where many of the conditions are very similar, but in the end they must work out their own salvation by the development of a system of Canadian forest management, designed especially to meet Canadian forest conditions.

Stock-taking of Timber Resources.

As a last step in this direction it will be the duty of the Provinces to undertake a systematic stock-taking of their timber resources, for without a knowledge as to what they have in the way of standing timber, any attempt at forest management must be blind and ineffective. This stock-taking will naturally include the kind, quantity, quality, state of maturity, rate of growth, and location of the standing timber; the character of the soil and its adaptability for growing particular kinds of timber; and a more or less complete topographic survey, having special reference to the drainage, character of the surface, and such other features as would be of importance in planning logging operations. Knowing, then, what there is and where it is, and how it may be gotten out, the next step will be to limit logging operations as much as may be practicable to districts where the stands are mature or overmature. The mature timber must be sold under such conditions as will conserve alike the interests of the lumbermen and those of the Province. The price paid for the logs must be made with the clear understanding that they are to be removed under such rules and regulations as will insure the reproduction and future safety of the forest. These rules and regulations must naturally be prepared and published in advance of the sale, that the purchaser may know definitely at the time of the sale the conditions under which he is to conduct the logging operations.

The Lumbermen and Forestry.

Lumbermen are more interested in the perpetuation of the forests than any other class of citizens, and in any square deal will be found willing to do their share to that end. It is high time, however, that the Canadian Provinces ceased to sell the public timber under a system which makes it in the present financial interest of the logger to despoil the forest. Were the stumpage sold in a proper and business-like way there

would be no need to implore the lumberman to think of the nation's posterity rather than his own, a plea which must always be futile. Besides it is perfectly practicable to conserve and harmonize the interests of the lumberman and the public, present and future.

Trained Foresters Necessary.

Systematic care of forests implies, of course, a trained forest service. There was a time when the doctor's office, the court room, and the deck of a ship were the only places of training for the physician, the lawyer and the naval officer, just as to-day the lumber camp is the only place of training for those who at present direct the cutting of the Canadian forests. But the world has made progress in educational matters in the last fifty years, and to-day we have, established and maintained by the State, military and naval academies, schools of law and medicine, mining, engineering, agriculture, and other professional and technical schools too numerous to mention. The time has fully come for the establishment of a Canadian School of Forestry for the training of her coming forest service.

A Practical Forestry Training.

Time does not permit me to discuss in any detail the character of the instruction which should be given at such a school. In very brief, I would say that a broad elementary training in the so-called natural sciences and mathematics is a most necessary preparation for the forester's professional training. That the professional training must be as practical as possible goes of course without saying. To this end all theoretical instruction must be supplemented by practical investigation and application in the woods. I would go farther and recommend that on the completion of their school work—theoretical and practical—all students who have not previously had a practical training in the lumbering business be required to associate themselves with a lumber firm for a year for the purpose of studying and

practically assisting in the various operations from the felling of the tree to the grading of the lumber for the market. This training will prove of value to students not alone in the matter of information gained, but will serve the useful purpose of bringing the foresters and the lumbermen in touch personally and professionally.

Assistance for Private Owners.

The educational side of a national forest policy would be incomplete without provision for the dissemination of a knowledge of improved methods of woodland management for the benefit of the private owners, who control in the aggregate many million acres of woodlands, which, scattered as they are throughout the agricultural sections, are acre for acre the most valuable of Canadian forest lands. The Ontario Department of Agriculture and the Dominion Forestry Branch have already made an excellent beginning in this great educational work.

Such in brief is a glimpse of Canada's responsibility, opportunity, and duty. As we accept our responsibilities, and as we do our duty according to our opportunity will we be judged by future generations as having been worthy or unworthy custodians of an almost unbounded natural resource.



Mill Matters

A company of American capitalists, headed by Senator Mason, of Boston, will start a pulp mill in the Black River district, near Montreal. The capital will be \$2,000,000.

The Brompton Pulp and Paper Company's mills, which started up again recently, are increasing their output every day, and are finding a good market for their products. A large American firm has had representatives here a few days ago, who have bought a good part of their products,

and the only drawback at the mills is the shortness of help.

The Lake Superior Corporation has at last been incorporated in Ontario. The corporation whose headquarters are in New Jersey, is empowered to build canals, engage in mercantile business, operate steamships, furnish power and light, make paper and pulp, build gas works, sell stocks, do banking, and many other things. Charles D. Warren, of Toronto, is named as the corporation's attorney. The charter restricts the company to the use of \$5,000,000 for investments in Ontario.

A serious fire occurred at the Dominion Pulp Co.'s mill, Chatham, N.B., on Sunday, January 14th, by which several buildings were destroyed. These comprised the wood-room, acid-room, and sulphur plant. The estimated loss is about \$30,000. The loss was chiefly on the acid plant, which was insured at \$11,000, and the wood-room, insured at \$5,600. The mill was built on the site of the old Hutchison saw-mill in 1896, was owned by English capitalists, and gave employment to about 100 men.

The Toronto Paper Company's chemical building, part of their large plant at Cornwall, was gutted by fire at an early hour Tuesday morning, the 16th inst. Just how the fire started is not certain, but the inflammable stuff in the building soon made it a roaring furnace. The paper company's employees and the town firemen fought the fire for three hours, and managed to confine it to the chemical building. The wind helped them considerably, as it blew the flames away from the other buildings. The roof of the chemical building was destroyed. The loss will be in the neighborhood of \$1,800, fully covered by insurance.

E. W. Backus, president of the Fort Frances Power Company, states that the erection of the pulp mill contemplated by his company will take place in the spring. The capacity of this

mill is variously stated at from 200 to 600 tons of pulp per day. Notice is given that the town will apply for the right to build a railway and passenger bridge over the Rainy river, above the town. This means that the Duluth, Rainy River and Winnipeg Railway will enter Fort Frances and connect with the Canadian Northern Railway. The road is within fifty miles of Fort Frances now, and is to be finished there next summer. This will bring the town within five hours' ride of Duluth, eight hours of St. Paul, and will bring Winnipeg within thirty-one hours of Toronto, or several hours nearer the east than at present.

Comparatively few people are aware of the fact that in St. Catharines' latest industry, the Jenckes Machine Co., two of whose large factory buildings were erected only late in the fall and early winter, about 100 hands are already employed. The by-law was only voted upon in July of last year, and, though it called for the erection of those buildings before January 1st, and the employment of 100 hands the first year, little disappointment or surprise would have been felt had there been a delay of a few months or more. Indeed, it may now be said that the intention of the company was to have completed the buildings this year, and the insertion of the date, January 1, 1906, was a clerical error, and not discovered until after the publication of the by-law. The Jenckes Machine Co., however, have more than made good, and that is a characteristic of that company.—St. Catharines Standard.



NEW COMPANIES.

The C. R. Somerville Company, London, Ont., will erect a paper box factory in Stratford, Ont. Work will be commenced in the spring.

The "Journal" and "Star" of St. Catharines, have amalgamated and will

be known hereafter as the "Star-Journal." The paper will continue to be the Liberal organ of Lincoln county.

The Wilson, Munroe Company, Toronto, have been incorporated with a capital of \$100,000 to manufacture printers, book-binders, and box-makers' supplies, etc. The provisional directors include T. G. Wilson and E. S. Munroe, Toronto.

The Macmillan Company, of Canada, Toronto, have been incorporated with a capital of \$20,000, to carry on a business of publishers. The provisional directors include G. A. Macmillan, Westminster, England; C. C. Nadal, New York City, and Frank Wise, Toronto.

The Murray Bay Lumber and Pulp Company gets incorporation, with headquarters at St. Etienne de Malbaie, and a capital of \$500,000. Among those interested therein are Messrs. Rodolphe Forget, M.P., T. Bienvenu, G. B. Burland and Henri Gerin Lajoie, K.C., all of Montreal.

The Canadian Printers, Limited, St. Catharines, Ont., have been incorporated with a capital of \$40,000, to carry on a business of printers, engravers, etc. and to manufacture printers' supplies, etc. The provisional directors include W. D. Woodruff, H. F. Schaedel, and J. A. Keyes, St. Catharines.

The Murray Printing Company, of Toronto, has been incorporated. The share capital of the company is \$150,000, divided into 1,500 shares of \$100 each. The provisional directors of the company to be Douglas Stewart Murray, James Murray, Joseph Alexander Murray, Roy Stanley Gee and Bertha May Gibson.

Messrs. R. J. Reid & Company, Winnipeg, Man., have been incorporated with a capital of \$750,000, to manufacture paper and wooden boxes, envelopes, etc., and to carry on a business of printers, lithographers, engravers, etc. The provisional directors include R. J. Reid, J. R. Hitchings, Winnipeg, and Thomas Todhunter, Portage la Prairie, Man.

A syndicate of Montreal and Toronto capitalists, headed by Major G. W. Stephens, M.P.P., and D. Lorne McGibbon, have secured the controlling interest in the Canadian Rubber Company, Montreal. The capital of the company is \$1,500,000. Plans will be made to enlarge and improve the plant.

The Manitoba "Gazette" contains notice of the formation of a new printing business in Winnipeg, to be known as the Canada West Publishers, Limited. Those connected with the business are: William Wilson Irwin, publisher, of Brandon; James Weir, journalist, Hamilton, Ont.; William Oliver Tassie, insurance broker; Robert Allison Coyne Manning, and Thomas Seaton Ewart, barrister-at-law, all of Winnipeg. The capital stock is placed at \$20,000.

P. F. Pearson, M.P.P., of Halifax, has acquired a majority of the stock of the St. John "Sun" Printing Company, St. John, N.B. Mr. Pearson is said to be acting for a syndicate, and the purchase will probably cause a change in the politics of the "Morning Sun and Evening Star," published by the company. The "Sun" was established in the spring preceding the election of 1878 as a Conservative paper, and has been the exponent of Conservative principles in that part of the country ever since. Mr. Pearson states that the paper will, so far as he now sees, be independent in politics, but it is believed that there is an understanding between him and the Minister of Railways in this matter.

The Miramichi Lumber Company, the incorporation of which was mentioned in the last issue of this magazine, has completed negotiations for the purchase of a property in the valley of the Miramichi river, consisting of between 300,000 and 400,000 acres of timber land. Two saw-mills at Chatham, N.B., and a site on which a cutting-up mill for the manufacture of pulp-wood will be erected. The company plans to

cut about 20,000,000 feet of lumber the present winter for use next season, and about 400 men will probably be employed. The mills are operated by steam power, and saw six months in the year, beginning about May 1st. The annual output of the mills is about 20,000,000 feet of English deals. Practically all of this lumber is shipped to England from St. John or other Canadian ports. The mills employ about sixty-five men, and have unexcelled facilities for shipping the output. The cutting-up mill for the manufacture of pulp-wood will have an annual output of 15,000,000 feet.



NORTHERN SULPHITE MILLS.

A by-law to exempt the Northern Sulphite Mills from municipal taxation was voted on by the electors of Sturgeon Falls on January 1st, and the by-law received over the two-thirds majority required, the vote being 140 for to 40 against. This by-law was voted upon September 20th last, but the required number of votes were not polled and the by-law failed to carry. The vote on that occasion resulted 109 in favor and 18 against the by-law. The new company is subsidiary to the Imperial Paper Mills Company and the by-law enacts "That the mill-site, mills, stock and working plant of the Northern Sulphite Company, Limited, situated within the Town of Sturgeon Falls shall be exempt from municipal taxation, excepting school rates, during the period within which the Imperial Paper Mills of Canada, Limited, are so exempted, namely, ten years from the first day of January, 1899, with a further renewal period of ten years thereafter, namely, up to and including the 31st day of December, 1919.

"To obtain exemption the mills must be in full operation nine months of the year, and must employ at least fifty hands.

The Pulp=Wood Industry

By Herbert M. Price, President of the Province of
Quebec Pulp-wood Association.

The subject of pulp-wood is one that has come to the front within the last ten years prominently from many points of view and has many collateral bearings, and has, I believe, been instrumental in bringing the question of forestry as practical politics before the public.

Dimensions of Wood Cut.

There is no doubt but that a smaller diameter of wood has been cut than is in the true interests of the pulp and paper mills to accept or the owner of private lands or limits to cut. Some twelve years since the diameter shipped was six inches and up, while now four inches and up is accepted.

The actual quantity of wood is less in a cord of four inches and up than in six inches and up, but competition between buyers has brought about this lower minimum. It would be much in the interest of the owner of timber lands to make only five inches and up: he would get a better price for his wood, his lands would not be so depleted and depreciated, the jobber could afford to make it at a less price, and the paper mill could afford to pay more for it.

Sorts of Wood and Dimensions.

Principally, there are three sorts of pulp-wood: spruce (including balsam or sapin), hemlock and poplar, but this paper will deal generally with spruce, as quantities of hemlock and poplar are small, and do not materially affect the question now under discussion, and hemlock is cut primarily for its bark, and not for pulp-wood.

Pulp-wood is divided into rough wood (wood with the bark on), peeled wood, hand-shaved wood and rossed wood.

Rough wood is made generally in the winter in whatever lengths are most convenient, being cut down to four feet

before shipped to the United States, and sometimes to two feet. If trees are cut after winter sets in, same can be hand-peeled to advantage the following spring, as the sap will then run.

Peeled wood is peeled in the woods in June, July and August, and mostly cut into four-foot lengths, and hauled out the following winter or driven the following spring.

Hand-peeled wood is generally peeled with a drawknife the following spring and summer after being made rough in the woods, and after being either hauled, cut or driven. The later in the summer it is so hand-peeled the harder the work is.

Rossed wood is the rough wood machine-peeled by a barker or rosser. The loss of wood in this case is greater than when it is hand-shaved, and may be estimated at from 20 to 30 per cent., according to the size and quality being peeled, as, naturally, the smaller the diameter of the wood the greater the waste or loss.

Up to within the last two years the wood barker or rosser only barked sticks of wood not over two feet, but now the Moreau barker rosses four-foot sticks.

Contents of a Cord.

The number of pieces in a cord of course varies greatly according to the size of the wood cut, but from actual measurement a cord averaging $4\frac{3}{4}$ in. in diameter takes 174 pieces; $5\frac{1}{2}$ in., 122 pieces; 6-1-5 in., 100 pieces, and 7-1-10 in., 82 pieces, showing the extra labor and handling in cutting small wood.

In shipping wood by rail it is found that a cord of wood peeled one summer and shipped the following winter or spring weighs about 3,000 pounds, while unbarked wood comes near 3,800 pounds per cord.

Values.

In speaking of values, of course points of shipment and favorable rates of transportation by rail or water make the price, but I am taking points favorably situated in the Quebec district as a basis. The values of pulp-wood have gone up greatly during the past ten years, and especially within the last five. Kough wood that sold at \$2.50 a cord, six inches and up, in 1892 sold in 1904 at \$4.50 for four inches and up, but the demand for this wood has decreased, the mills preferring peeled or rossed, as they get apparently more for their money.

Peeled wood is sold from \$6 to \$6.50 a cord in conjunction with hand-shaved.

Rossed wood has recently come into great demand, no doubt the mills having found it to their advantage to use it at the price they paid, say, \$7 to \$7.25 per cord of 128 cubic feet, cut into two-foot lengths, four-foot lengths not being in demand. The fires of 1903 in the Adirondacks and elsewhere in the United States, also in Canada, forced owners of stumpage so affected to utilize at once what wood was fit for rossing. This, no doubt, brought a surplus on the market.

Varicus percentages of balsam or sapin are shipped in with spruce pulp-wood.

Stumpage on private lands well situated has practically doubled in the last five years, and consequently the values of such lands have risen very greatly. Stumpage as high as \$10 an acre has been paid on favorable lots. Lands that five or six years ago had greatly depreciated by extensive logging operations were given a new value by the market demand for pulp-wood.

Measurement.

In the Quebec district pulp-wood is generally bought French measure and shipped English measure, the French cord being 8 ft. 6 in. by 4 ft. 3 in. by 4 feet = 144 cubic feet, against the Eng-

lish cord of 8 ft. by 4 ft. by 4 ft. = 128 cubic feet. The short way to bring one measure into the other is to deduct 1-9 from the French measure and add 1-8 to the English measure.

Distances Transported.

To show distances transported and what an important part the north shore of the St. Lawrence river plays in the question of pulp-wood, it may be mentioned that the Battle Island Paper Co., of Fulton, N.Y., situated near Oswego, on Lake Ontario, draws the greater portion of their supply from the upper part of the Saguenay river at Ha Ha Bay wholly by water, a distance of nearly six hundred miles. Pulp-wood is also shipped from Escoumains, some distance below Tadousac.

Quantities Consumed.

It is estimated that the United States consume yearly about 2,500,000 cords of pulp-wood, of which we ship them about 25 per cent.

During the past year the Adirondacks alone produced some 580,000 cords of pulp-wood, equal to, say, 350,000,000 feet B.M. This cutting is practically at our own door, and tells us that some day Canada will have much more to say as regards the supply, as prices of stumpage in the United States have gone to very high figures.

The Department of Customs at Ottawa informs me that the total quantity of pulp-wood exported from Canada during the fiscal year ending July 1, 1904, was 479,238 cords. These figures, in conjunction with the information I give, go to demonstrate that the United States look to the Province of Quebec for a very large proportion of this 25 per cent.

There were 259,231 cords of pulpwood cut on Crown Lands in the Province of Quebec in the year ending June 30, 1903, of which 70,576 cords were exported from Canada. I understand from the Department that the amount cut for the year ending June 30, 1904, was very similar to the foregoing year, but

the returns are not yet published. Mr. J. E. A. Dubuc, in his pamphlet of the present year on "Pulp-wood," states that from 720,000 to 750,000 cords are cut yearly in the Province of Quebec, of which 300,000 are converted into pulp and paper for local consumption and export. These statements show the large proportion of pulp-wood that is cut on private lands in the Province of Quebec. The estimated amount of pulp-wood cut on Crown Lands in the Province of Ontario during last year is 60,000 cords.

Unsatisfactory Manner of Selling to the United States.

There is much to be done to put the pulp-wood trade on a satisfactory basis as between the seller in Canada and the purchaser in the United States, as the custom is now for the seller in Canada to take mill measurement, or final measurement, in the United States in spite of the fact that wood is generally sold f.o.b. car or boat in Canada. The Pulp-wood Association has discouraged strongly any sales made deliverable at mill in the United States, believing that the debt should be one collectible on this side of the line, and that the United States mills should be responsible for changes in freight, and also for any duty imposed by their Government, the Canadian shipper being responsible for any export duty imposed by Canada. There is often much difference in measurement of boats and cars between Canada and the United States, and same must continue as long as the present system exists.

Duty on Pulp-wood.

All pulp-wood is admitted free into the United States at present but about two years since the United States Government commenced collecting 20 per cent. duty on rossed wood, claiming under the Dingley tariff that it was a manufactured article. The payment of duty was protested by interested parties, and the case tried before the General Board of Appraisers in New

York, which decided that rossed pulp-wood was free. The Government then ceased collecting, but appealed, and the case went before the Circuit Court in the District of Vermont, which court affirmed the decision.

The Government again commenced collecting duty on rossed wood in July, 1905, at 20 per cent. on the cord, valued at \$7, or \$1.40 per cord, and immediately afterwards lowered the valuation to \$5.50, or \$1.10 per cord, and has ceased collecting since the decision of the Circuit Court of Vermont in October last, but has again appealed, and the case will go before the Circuit Court of Appeals. The strong probabilities are that the Government's contention will be set aside. The Government has, however, not yet made a refund of duty collected.

Province of Quebec Pulp-wood Association.

An association, called the "Province of Quebec Pulp-wood Association," of which I have the honor to be president, was formed in 1902, and I think well to quote from its constitution the reasons for its formation:

"The object of the Association shall be to promote the interests and conserve the rights of those engaged in the pulp-wood business, or in the manufacture and preparation of pulp-wood, to hold meetings of the members for the consideration and discussion of questions affecting those interests, and, by union and co-operation, to build up and foster the pulp-wood business.

"To inaugurate a uniform system of measuring and selling pulp-wood to Canadian and American pulp and paper mills.

"To assist in encouraging shippers to export only a good class of pulp-wood, so as to maintain a good name for pulp-wood shipped from the Province of Quebec.

"To encourage the strict observance of contracts between producers of the wood, shippers of same and the mills

in Canada and the United States who consume it.

"To look after the facilities for shipment of wood given by railroads and water transportation companies.

"To foster good-will between the shipper and the consumer, and to be the means of removing differences between them."

The Association has, I believe, done, and is doing, good work on the above lines.

Export Duty.

The question of an export duty being imposed by Canada on pulp-wood has been much discussed, but I feel that the safest course, and the wisest one, is to let things remain as they are, for I believe this policy conduces to the interests of the many. We cannot afford to lose an export wood trade of \$3,000,000 a year, and wait for possibly many years before a home market is found. This country's resources are so immense in pulp-wood that we can afford for some time yet to export the raw material, and until we are able to find capital to build up mills to manufacture and export the product; besides, the building of pulp mills in Canada, apart from paper mills, is not particularly encouraging at present.

When we consider the enormous and almost unlimited supplies of pulp-wood derivable from the north shore of the St. Lawrence river alone, we can safely feel that this question may be left where it is for the present. New supplies are constantly coming into sight, and I may mention the Island of Anticosti as one of these, which will probably prove itself to be a shipper of pulp-wood and pulp on a large scale in the near future. The country between Quebec and Hamilton Inlet, a distance of over 750 miles, in a straight line, is a fair reserve for the future. We are not doing posterity a wrong as regards this question of an export duty by not agitating it now. Hon. Mr. Parent, when Premier and Minister of Crown Lands of the Province of Que-

bec, in his speech on the pulp-wood question, in April, 1903, stated that there were 62,592 square miles of Crown Lands under license, and 100,000 square miles of absolute forest not yet under license, making 162,600 square miles of Crown timber lands amounting to 104,000,000 acres. Since that date the mileage under license has increased to over 67,000 square miles.

Besides the above there were some 20,000,000 acres of seigneuries and patented lots, the large proportion by far being timbered.

The depreciation in value of timber lands in the event of an export duty would be very considerable, as the duty, in order to meet the views of its advocates, would have to be made heavy enough to make export prohibitory. It would also stop for an indefinite time the purchase by Americans and others of our unsold timber lands, and would certainly decrease the resources of the Provincial Governments owning same.

Further sales of Government timber lands could not be made to advantage, and it would inflict a heavy blow on all spruce limits now under license. Thousands of square miles of timber lands would lie unworked for years with consequent loss in settlement and population.

The question of retaliation by the United States Government I do not discuss, but it is a factor in the case, although I feel strongly that we must draw the line somewhere as regards concessions. A policy of reciprocity, if obtainable, would be preferable to inaugurating a tariff war.

Pulp-wood has been the means of saving waste in the woods where made in connection with logging operations.

A certain portion, and by no means a small one, of our northern spruce-producing country cannot be developed to advantage by the building of pulp and paper mills, but the pulp-wood on same can be shipped to very great advantage.

Every settler is more or less interested in the pulp-wood trade and it has

helped largely the clearing and settling of land.

The greatness of our water powers will be a telling factor in the future in solving this question of export duty.

Shipments to Other Countries.

The shipment of pulp-wood to other countries than the United States is today practically barred by transportation charges, as Europe is supplied to a great extent by Scandinavia on account of its proximity.

Laws of the Provinces.

The Province of British Columbia has now no law in force regarding timber cut as pulp-wood, as they repealed the law of 1901 which charged a rental of not more than two cents per acre and royalty of not over twenty-five cents per cord.

In New Brunswick, if pulp-wood is cut on Crown lands, it is subject to the dues of merchantable lumber, which for spruce are \$1.25 per thousand superficial feet, and no log to be cut that will not make a log 18 feet long x 10 inches at the small end.

The Province of Nova Scotia issues twenty year licenses of timber lands for pulp-wood purposes at \$1 per acre, authorizing the lessee to cut timber of not less than five inches in diameter. They, however, issue special leases in case of erection of pulp mills, etc.

The Province of Quebec charges a stumpage of 65 cents on pulp-wood per cord of 128 cubic feet, equal to 600 feet B.M., with a reduction of 25 cents per cord on timber manufactured into pulp or paper in the Dominion of Canada, and in connection with this rebate the United States Government imposed a countervailing duty of 25 cents a ton of 2,240 lbs. on all pulp made from wood cut on Crown Lands in the Province of Quebec. Pulp made in Ontario from wood cut on Crown Lands in the Province of Quebec was also subject to this countervailing duty. This stumpage of 65 cents per cord is equal to 91 cents per 1,000 feet.

The Government of the Province of Ontario cover the cutting of pulp-wood to a great extent by arrangement between the Province and parties acquiring areas, each individual case being dealt with according to circumstances, but generally the dues, as fixed on the 20th March, 1900, are forty cents a cord. A law was passed on January 13th, 1900, prohibiting the export of pulp-wood from the Province of Ontario in an unmanufactured state. The lease for 21 years with the Rainy Lake Pulp & Paper Company calls for 40 cents a cord for spruce, nothing to be cut under six inches.

Increase in Pulpwood Trade.

The demand for pulp-wood must increase rapidly in the future as it has in the past few years, as the number of articles made from pulp are daily increasing, and the spread of education means more pulp-wood in consequence of the dependence of the paper makers on the article. It is well to remember that what is disastrous to many trades is generally beneficial to pulp-wood, viz., war, as past experience has shown the very great demand for paper that it produces.

The uses of paper are also becoming manifold, and so the circle is constantly enlarging. He would be a rash man who would undertake to limit the uses paper may be put to in the not distant future.

Forest Fires.

This has been dealt with by Dr. Robert Bell, but I think that the penalties should be more severe when fires in the woods are started by settlers.

Suggestions re Future Policy.

Although the pulp-wood industry is regarded as inimical to forest culture, it must inevitably increase year by year, and it is with this trade that the owners of timber lands, whether Government or individuals, have to deal, as the denudation of the country will be affected by this trade in a greater ratio than by logging. It is well to bear in mind

how much owners of private lands are interested in this question and that we have not to deal with governments alone.

The inroads pulp-wood will make on our timber reserves will increase in an unknown ratio, and, if conducted in a judicious way, will tend to the perpetuating of the trade in the same way the judicious logging of spruce has done. Of course, much of the country which is pulp-wood producing is not a desirable logging territory, and, consequently, the Government of the Province of Quebec permit cutting of black spruce of 7 inches at the stump.

The reproductive qualities of spruce will act forcibly as a saving clause against annihilation of our spruce forests, and this alone, in my belief, makes the forest wealth of the Province of Quebec greater than that of our sister province, Ontario, and of a far more enduring character.



The Pulp and Paper Industry of Canada

A Paper read before the Canadian Forestry Association, by the Editor.

Three years ago Canada entered on the second century of its career as a pulp and paper manufacturing country. For the pioneer mill, as well as for the development of recent mills operating under the most modern conditions, this country is indebted to enterprising citizens of the United States. The industry had its birth in 1803 at St. Andrew's in the Province of Quebec, a company of men from the United States, with James Brown at their head, having obtained a thirty years' lease from the Seigneur of the district. In this same year the Fourdrinier machine, which was to revolutionize paper-making, was introduced into England. The St. Andrew's mill, which was a small one, found its market in Montreal and Quebec, and was operated until 1834, when a freshet carried away the dam, and the

I believe the interest of this country is to discourage by legislation, or otherwise, the cutting of trees for pulp-wood under 7 inches in diameter at the stump, and the shipping of pulp-wood under 5 inches in diameter. Increasing value of stumpage has a tendency to make people more conservative with their timber lands, as it pays to be so, and the teachings of the Forestry Convention and Associations will be useless if they do not coincide with what the State and the individuals forming that State consider to be their interests.

Pulp-wood affects all our interests directly or indirectly; it makes the article of paper which is used to spread the gospel this convention is preaching.

If this convention is the forerunner of a policy, as regards pulp-wood, producing the best financial results with a minimum of destruction, it will have justified its being.

Seigneur objected to its reconstruction.

A newspaper proprietor, A. H. Holland of the Halifax "Recorder," built the second mill near Bedford Basin, N.S., about 1819, and the first mill in Upper Canada came into existence in the following year at Ancaster. The last named mill soon disappeared, but public attention was now directed to the subject, and as the result of a bonus offered in 1826 by the Government of Upper Canada to the first paper mill that should be started, two contestants ran a race in building. The contest was so close that the winner was only able to secure his prize by starting his mill on a Sunday. By 1842 Upper Canada had 14 small paper mills. The census of 1851 showed that Upper and Lower Canada had five mills each, the returns of 1861 adding one mill to Lower Canada.

The census of 1871 gave 12 mills to Ontario and 7 to Quebec, and one each to New Brunswick and Nova Scotia, these 21 mills employing 760 hands. The census of 1881 recorded 36 paper mills, and 5 pulp mills, and that of 1891 34 paper mills and 24 pulp mills.

It was in the decade 1880-90 that the era of pulp and paper manufacturing from wood may be said to have begun in Canada. In 1886 the writer took some samples of pulp and paper made by the Canada Paper Company to the Colonial and Indian Exhibition in London, and though the suggestion that Canada could supply pulp to British paper mills was not then regarded seriously, actual shipments began shortly afterwards in quantity, and when wood pulp first figured separately in the trade and navigation returns in 1890 the value of the shipments had reached \$168,180.

The development of pulp and paper manufacturing from 1888 to 1905 is shown by the following figures compiled from the various editions of the Canadian Textile and Paper Trades Directory:—

Pulp Mills.

	1888.		1892.	
	No. mills.	Cap. in tons per 24 hrs.	No. mills.	Cap. in tons per 24 hrs.
B. C. ....	..	..	1	10
N. B.	2	7	2	17
N. S.	2	7	3	14
Ont.	10	41	10	46
Que.	20	99	21	225
—	—	—	—	—
	34	154	37	312
	1899.		1905.	
	No. mills.	Cap. in tons per 24 hrs.	No. mills.	Cap. in tons per 24 hrs.
B. C.	1	10	..	..
N. B.	4	143	6	198
N. S.	5	91	6	141
Ont.	12	492	12	615
Que.	17	409	32	1516
—	—	—	—	—
	39	1145	56	2470

Paper Mills.

	1888.		1892.	
	No. mills.	Cap. in tons per 24 hrs.	No. mills.	Cap. in tons per 24 hrs.
B. C. ....	..	..	1	6
Man.	1	5	1	5
N. B.	2	3	1	3
N. S. ....	..	..	..	..
Ont.	19	83	17	96
Que.	18	82	18	99
—	—	—	—	—
	40	173	38	209
	1899.		1905.	
	No. mills.	Cap. in tons per 24 hrs.	No. mills.	Cap. in tons per 24 hrs.
B. C.	1	10	..	..
Man. ....	..	..	..	..
N. B. ....	..	..	1	8
N. S.	1	5	1	4
Ont.	15	109	18	251
Que.	16	204	18	591
—	—	—	—	—
	33	328	38	854

Summary—Pulp Mills.

	Cap. in	
	No. mills.	tons per 24 hrs.
1883	34	154
1892	37	312
1899	39	1145
1905	56	2470

Note.—The total capacity of mills producing chemical pulp by the sulphite process was about 500 tons per day in 1899, and the same in 1905 so that the increase of the last six years has been wholly in mechanical or ground wood pulp.

Summary—Paper Mills.

	Cap. in	
	No. mills.	tons per 24 hrs.
1888	40	173
1892	38	209
1899	33	328
1905	38	854

It will, therefore, be seen that the capacity of the Canadian pulp mills has

more than doubled, and the capacity of the paper mills increased still more in the last six years. Besides the mills in actual existence at the close of 1905 there are now in course of erection six pulp mills with a total daily capacity of about 630 tons, and eight paper mills with a total daily capacity of 375 tons. These do not include the names of companies who have projected, but have not yet actually started, mills.

These mills manufacture all grades of wood pulp, and most varieties of paper ranging from common wood board, straw board, and building papers, to fine book, writing, bond, ledger, and coated papers. They not only supply the bulk of the home market in certain lines, but of recent years the paper mills as well as the pulp mills, have developed an export trade. In the last fiscal year there were exported Canadian wall papers to the amount of 248,574 rolls, valued at \$23,053, and other papers to the value of \$1,768,020, while pulp to the total value of \$3,399,158 was exported to the following countries: Great Britain, United States, France, Newfoundland, Belgium, Australia, British East Africa, Japan and Bermuda. Of these countries the United States took from us pulp to the value of \$2,694,122; Great Britain, \$680,199; and France, \$14,168. Within the last half of the last calendar year the shipments to France have notably increased, and this trade bids fair to add a strong commercial tie to the sentimental tie that links the Province of Quebec to France.

In addition to being a large manufacturer of paper, Canada is a generous consumer of foreign papers. The imports of dutiable papers in the last fiscal year were \$4,979,085, and of papers and books free of duty, \$852,879, making a total of \$5,831,964. It is worth while here to note the share of the mother country, and that of the United States in this trade. Of printed, unprinted, dutiable and free papers Canada took from Great Britain to the value of \$1,180,036, while from the United States her imports

were \$4,315,383. In each of the 31 classes specified in the trade returns the United States led last year. When the four Canadian Provinces began life as a Confederation almost the reverse was the case, Great Britain in 1868 leading in all but two items, her total exports of paper and paper manufactures to Canada being \$897,279, against a total of \$385,382 by the United States. This remarkable change is explainable to a great extent by the part played by wood in the paper industry of the world, and the special relation of Canada to the pulp and paper industries of the whole American continent.

Canada has the greatest area in the world of forests suitable for the manufacture of pulp—her spruce lands alone being estimated at 450,000 acres—while the great net-work of flutable rivers, and the enormous water powers of the country have attracted the attention of the nations, especially the alert nation to the south. The vast output of books and other manufactures of paper, and the still vaster output of the newspaper press of the United States have made corresponding demands on the pulp and paper mills of that country, which have increased in number from 776 in 1900 to over 1,200 in 1905, producing between 3,000,000 and 4,000,000 tons of paper in the year. The wholesale destruction of pulp timber has already brought some of the States face to face with a wood famine. Being no longer able to obtain cheap supplies of wood at home many of these manufacturers have turned to Canada, with the result that timber limits, ranging in area from 50 square miles up to 2,800 square miles, chiefly in Quebec, New Brunswick and Nova Scotia, have been acquired as a means of supplying themselves with raw material, and the process of forest destruction, which is reducing some of the States to sterility has now been transferred to a country whose people have scarcely yet begun to realize the desolating effects of unregulated pulp-wood operations. Thus by means

of the cheap supplies of superior Canadian pulp and pulp-wood United States mills with their modern equipment have not merely displaced British papers, but compete with Canadian mills.

According to Canadian returns the exports of pulp-wood for the year ending June 30th last were 593,624 cords, valued at \$2,600,814. These returns are considered by those who should know to be much understated. The methods of measuring in some districts give from 140 to 170 cubic feet, instead of 128 to the cord. On the borders of Maine and New Brunswick and other regions where streams cross and recross the boundary quantities go out without record as exports, while around the upper lakes quantities are taken from unfrequented streams, and towed across the lakes without record. Some shipped as cord-wood is said to find its way ultimately to the pulp mill after arriving in the United States. For these and other reasons it is probable that the actual present export of pulp-wood to the United States amounts to 750,000 cords annually—some place it at nearly a million. The shipments over the Quebec Central Railway alone last year to the States were 235,476 tons, or at 72 cubic feet to the ton 132,455 cords; over the Intercolonial 173,245 tons, or 97,550 cords; over the Great Northern 10,148 cords; over the Quebec & Lake St. John 18,000 cords. The figures for the two principal railway systems, the C. P. R. and G. T. R. are not available, and there are the shipments by barge and tow up the St. Lawrence and across the Upper Lakes to be dealt with.

But taking the official returns as correct we find that the exports of pulp-wood to the United States have increased from \$80,000 in 1890 to \$637,865 in 1896 and to \$2,600,814 in 1905, or more than four-fold in the past ten years. This rapidly increasing depletion of some of the best and most accessible pulp-wood areas of Canada by manufacturers of the United States presents a problem that can be looked at from two

standpoints—that of its effect on the Canadian pulp and paper trades, and that of its effect on the agricultural and other national interests, such as timber supplies and water powers which are dependent upon the distribution of rainfall.

Looking at pulp and paper manufacturing as a Canadian industry it will be evident that a country having an estimated area of 450,000,000 acres of spruce lands, not to speak of poplar, balsam and other pulp-woods, and probably 40 per cent. of the world's water power, is destined for a great career if it is not marred by improvident legislation. But the immediate difficulties are that it is placed side by side with the same industry in a country of larger population and larger markets, whose manufacturers have the command of greater skill and capital, and more experience in the export trade; that these manufacturers have unrestricted access to some of the best pulp-wood areas in Canada for their raw material; that they have in pulp-wood the lowest railway freight rate levied on any material, and in some instances this rate is made still more favorable to them than to Canadian mill drawing supplies from a like distance that by reason of these advantages and that of getting the best raw material in the world from Canada they are able through their protective tariff and large output to hold their home market and to ship their surplus to compete with the Canadian manufacturer. As on manufacturer puts it the United States paper manufacturers maintain their export trade by means of Canadian pulp-wood, for the raw material derived from Canada would produce all the United States' mills export to all countries, and leave a surplus for their home trade while if they were deprived of this source the cost of their raw material would be increased by 25 to 35 per cent. It would then be more difficult for them to undersell British and Canadian manufacturers either abroad or at home. The change would give a great impetus

the Canadian pulp and paper trade, for if the 750,000 cords now exported to the United States were manufactured in Canada into pulp and paper in the proportions required, say for news print, it could mean an investment of about \$21,700,000 for plant, and employ directly 6,400 men, with a total wage bill of over \$3,000,000 a year, not to speak of the commercial interests it would develop in association with the industry. The creation of this home industry yielding a factory wage bill greater than the whole value of the wood now exported would naturally give the timber mill owner, and the owner of the small wood lot a better market at home than the present one abroad for pulp-wood. Even the United States manufacturer could not be a loser altogether, for any individual mill owners would transfer their plants to Canada and find a business which would ultimately bring a better return to their capital than now, because the natural conditions are more favorable to the business. Hence Canada has not only the wood and water power, but men who understand wood craft better than any in the world.

One danger that is soon to be faced, however, is that railways will soon have to be built, largely at the cost of this industry, to reach fresh supplies of timber when the areas now drawn on are stripped. If to the consumption of Canadian mills, 600,000 to 800,000 cords a year, we add the consumption of Canadian pulp and pulp-wood by United States mills, even the present rate of depletion will soon call for the use of railways, which will add to the cost of production and handicap this country in competition with pulp and paper manufacturing countries like Norway and Sweden.

Looked at from a national standpoint this desolation of whole districts for the high price of pulp-wood is wanton improvidence. In the Province of Quebec especially, where the soil is comparatively thin, we see the curse of barren-

ness gradually creeping over large districts through the erosions of spring freshets, while in summer not a sign of flowing water is to be seen where streams flowed perennially within the memory of men now living. The low summer level of many Eastern Townships rivers in recent years is, no doubt, the symptom of permanent changes affecting the water powers, and damaging the pulp and paper interests particularly. What is taking place in the Eastern Townships, and on the north shore by stripping timber from the land around the sources of the streams will surely overtake the regions on both sides of the St. Lawrence, and a St. Lawrence valley that is subject to spring freshets and summer droughts from this cause means an impoverished Quebec. What will become of the great dairy industry, not to speak of other agriculture and manufacturing interests of the province, in such a case?

What is wanted, then, more especially in Quebec, is men of influence in public affairs who will teach the people the lesson of Mesopotamia, of Greece and of Andalusia—Andalusia once the synonym of fertility and abundance, now a scene of poverty and decay.

Administrators are wanted, not only in Quebec, but in other provinces, who will by some means find a revenue without devastating their native land and maiming that resource which is the parent of all resources of the soil—the forest.



—One of the most accurate methods of examining a banknote to determine whether it is genuine is by the stereoscope. If two authentic banknotes are adjusted and viewed in a stereoscope, the resulting image appears perfectly flat, since the images seen by the two eyes are precisely similar. If, however, one of the notes is not genuine, the slightest variations in the superscription produce relief effects, the printing appearing to stand out in some places, and to be recessed in others.

The Forestry Convention

The special convention of the Canadian Forestry Association at Ottawa was opened on the 10th inst, under the patronage of His Excellency the Governor-General, and under the presidency of the Prime Minister. There were during the three days of the convention, between 400 and 500 delegates and visitors present.

His Excellency, who opened the convention, was present each day and paid the closest attention to the proceedings. In his opening address Lord Grey said that though his experience of Canada was very short, it had been sufficient to impress him with the urgent need of focussing the best brains of the Dominion on the immediate consideration of what should be done with regard to our forests in order to protect the soil, on which the maintenance of our agricultural prosperity depends. He then went on to say: "I have seen in India, Asia Minor, Greece and Italy, extensive tracts of territory, once inhabited by a strenuous, prosperous, numerous population, and now reduced to the misery of barren desolation by the unregulated deforestation of their lands by a blind and selfish generation, which had no regard for posterity and no eyes for anything but their own immediate requirements. There are no more melancholy reflections than these suggested by the sight of a country enriched and equipped with all the majesty and panoply of power which has become a waste and a dreary desert through the reckless improvidence of its own people. It is the object of this convention to fix the attention of the people of the Dominion on the warning which these and other countries hold out to us as the practices we should carefully avoid. It is because I hope that this convention may be the means of averting from every part of Canada the sad fate of these countries to which I have referred that I have gladly accepted the request that

has been made of me to open this convention."

Sir Wilfrid Laurier, following His Excellency, referred to the harm already done in Canada by the reckless destruction of forests in many areas. It was the object of our ancestors to turn this land into a fit habitation for a race of agriculturists, but instead of treating the forest with care and tenderness, they looked upon it as an enemy to be got rid of with the axe, with fire, and every other mode of destruction. The pioneers of former days and of to-day do not realize that forests are just as indispensable as tilled fields to civilized man. They do not realize that unless tilled fields are surrounded by forests, the rainfall and the moisture will decrease and the agriculturist will suffer also. Mentioning the points that the convention ought to deal with he advised that in parts of Canada where the watersheds had passed out of public control, they should be repurchased and reforestation carried on as in France, Germany and other European countries. The question of guarding against the many enemies of the forest, especially fire, demanded serious consideration. It might be that a system of patrolling the forests, such as was in vogue in Europe, might be inaugurated. He gave the lumbermen credit for the patrolling they had done but it was not sufficient. Every man who went into the forest should be impressed with the fact that it was a crime to throw a lighted match on the ground or to leave a camp without extinguishing the ashes of the fire. Disregard of these precautions should be made a crime punishable by summary conviction. Forest fires were often caused by sparks from railway engines. Perhaps the railways might be compelled to patrol their tracks, and thus detect and put out incipient fires before they could do any damage. Finally, Sir Wilfrid said there should be a policy of tree planting.

The Premier eulogized Mr. Stewart, head of the Dominion Forestry Branch, for the good work he was doing, and emphasized the necessity of supplementing his efforts. He alluded to the improvement being wrought in Alberta, where the farms on the once treeless prairie were being surrounded by beautiful groves. Winnipeg was spoken of as a city which had done marvels in ree-planting. There was a great deal to be done in the East, and especially in his own Province of Quebec.

R. L. Borden, leader of the Opposition, proclaimed his sympathy with the reforestation movement, and gave a striking instance of the ravages by fire. He spoke of the highly successful reforestation in progress in Saxony. There should be continuity in any such policy. The timber should not be regarded as a crop to be destroyed, and to be renewed in 100 or 150 years, but as the capital of the State, upon which private enterprise should not be allowed needfully to trench.

Hon. Frank Oliver described the conditions in the North-West, and the efforts to renew and to preserve the timber, which were being made under Government supervision. In parts of the North-West destruction of forests by fires amounted to ninety-nine per cent., and only one per cent. by the lumbermen. Timber there has a value beyond its commercial value, and measures should be taken to prevent its destruction. It was difficult, he said, to grow trees in the North-West. It was not the cold, but the wild wind that prevented the growth of forests there.

E. G. Joly de Lotbiniere, president of the Canadian Forestry Association, said he hoped before long that a Canadian forestry school would be created where young men may receive a forestry education of a character suited to the needs of the country. Apart from the great benefit the country at large will derive by having its forestry interests confided to the care and management of thoroughly well-trained men, a new

area of usefulness will be opened to young Canadians, who will be enabled to devote their energies and talents to the welfare of the country.

Gifford Pinchot, chief of the forest service of the United States, said he had pleasure in bringing a personal message of good wishes from the President of the United States to the Governor-General of Canada, and also from Hon. James Wilson, Secretary of Agriculture of the United States, for the success of this work. The forestry question, he stated, is one of the utmost importance, but we must try to specify what forestry can do for us. The forest supplies us day by day with the most essential ingredients in building up our civilization. We call this an age of steel, but it is no less the age of wood. The forest now, instead of being the enemy of the farmer, is his friend. Mining is impossible without vast supplies of timber. The average citizen depends in his daily life on timber supply. Wood is just as necessary this day as any other article. All progress in forestry must be based on popular education, and in the United States efforts are being made to have every man, woman and child realize that a knowledge of forestry is essential. The States will have to spend millions and millions of dollars to buy back lands for forest reserves. These forest reserves are to continue not only through the years, but through the centuries. Now, the United States considered forestry a profession, just as engineering, etc., and forestry there is considered a very practical science.

At the afternoon session E. Stewart, Dominion Superintendent of Forestry, quoted statistics to show that the total wooded land area controlled by the Federal Government is 1,406,200 square miles, as compared with 963,618 square miles controlled by the Provinces. On a very large proportion of this the forest growth is of little value for commercial purposes. Probably only one-fifth of the land contains timber fit for

such purposes. On this land there probably remains approximately 350,000,000 feet of matured timber. The most important of all reasons for immediate attention to our forest problem is the necessity that the country at the sources of our water supply should be kept in forest. Denude the eastern slope of the Rocky Mountains of its forest growth, and you will destroy the great rivers that have their sources there. You will create a raging torrent for a few weeks in the spring, and after that a water famine. The irrigation canals of Alberta would be raging torrents for a short time, and devoid of water when it was most required. Similar results will follow in Eastern Canada if proper precautions to preserve the forests at the head waters of our great rivers are not taken. Mr. Stewart reviewed the work of the Federal Forestry Department. In 1901 a system of forest control and guardianship had been started, and had since been developed to a considerable extent. Each ranger is assigned a certain territory, and in the event of a dangerous fire starting which requires more men to control it the ranger has authority to engage help. The results so far accomplished had been good, particularly in British Columbia. Within the past year the forestry branch has started making a careful examination of the forest reserves, and it is the intention to continue this work. Forestry in Canada belongs more exclusively to the State than, perhaps, in any other country, owing to the fact that the most of the land on which valuable timber grows is still held by the Crown. He advised that in all patents of timbered lands a proviso should be inserted that at least 10 per cent. of the area conveyed should be left in timber; that the timber growing thereon should be the property of the patentees, but only to be cut under the authority and supervision of the Government. In conclusion, Mr.

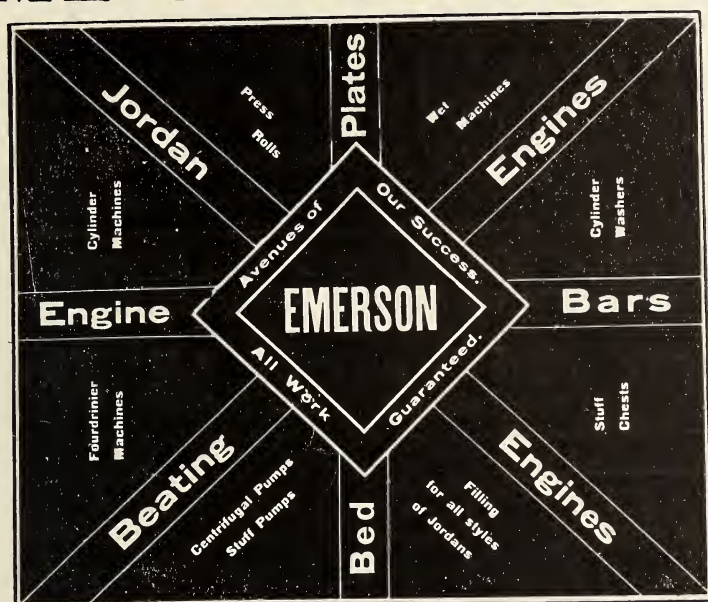
Stewart said that when the forestry branch have sent out in the spring the nursery stock ready for shipment there will have been distributed, free of charge to settlers on the western prairies, 7,000,000 trees. This nursery system promises to prove of incalculable benefit to the great plains region.

C. H. Keefer, C.E., Ottawa, said that there was in Canada a magnificent heritage in its water power. To obviate destruction of property by floods, to avoid waste of water, and to regulate the flow, two things were needed. One was the storage of water in the natural reservoirs formed by the lakes. The other was to conserve the forests, and gain the beneficent effect of nature's check on the too rapid discharge of the rivers. In the United States there was a loss from official estimates for twelve months ending in 1902 of over \$18,000,000 caused by floods in streams which head in southern Appalachian Mountains, and within the northern pine forest extending from western Minnesota east to the Atlantic ocean and southward to middle Tennessee, northern Georgia, central Virginia and northern Maryland.

The United States has been asked to take control of these floods by the purchase of lands for a southern Appalachian forest reserve. In that country new legislation is proposed to supervise private forest management and preserve existing conditions. There have been floods in Canada which involved serious losses, and the cause might properly be assigned to the denudation of the forests. Unfortunately there was not in Canada a system of official measurements and results of stream flow. In the United States the effect of forest protection of water supplies was fully realized. Everything that tends to the preservation and improvement of water powers in Canada was of direct and lasting benefit.

(Concluded in Next Issue.)

EMERSON MFG. CO.



LAWRENCE, = = = MASS. F

PUMPS

For All Purposes

We can supply anything in the line of Pumps and Pumping Machinery from the smallest Boiler Feed Pump up to the largest Fire Underwriter's Pump.

ENQUIRIES RESPECTFULLY SOLICITED.

Send for our Pump Catalog,

The Canadian Fairbanks Co., Limited.

Montreal

Toronto

Winnipeg

Vancouver

PULP AND PAPER MARKETS.

Toronto, 22nd Jan., 1906.

The pulp and paper trade has been quiet since the beginning of the year. The news market is in fairly good shape, but there appears to be an over-

production of manilas, and complaints are still made of prices.

The Canadian ground wood market is steady, and prices are from \$12 to \$13 at home mills, or \$19 to \$22 delivered at United States mills. In some quarters low water still prevails, but the situation in this respect has improved

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.

DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.

BARKER,
CHIPPER,
PAPER-CUTTER

MACHINE KNIVES

Of Every Description.

The Peter Hay Knife Co., Limited, Galt, Ont.

ESTABLISHED 1842.

Cheney-Bigelow Wire Works

SPRINGFIELD, MASS.

... Manufacturers of ...

FOURDRINIER WIRES

CYLINDER MOLDS, DANDY ROLLS

— ALSO —

Brass, Copper and Iron Wire Cloth

SOLE MANUFACTURERS OF THE

Bell Patent Flat Wires for Book Papers

F

on the whole. Sulphite is somewhat sluggish of sale at prices ranging from \$1.85 to \$2.15 per cwt.

In the United States the paper trade keeps up in most branches, but the book trade has been affected by the printers' strikes in the big cities. The pulp market there is not very brisk. Low water is reported in Wisconsin, but the production has not as yet been seriously curtailed as a consequence. Sulphite fibre keeps up, and some sellers are asking an increase in price. Domestic bleached fibre is quoted at \$2.50 to \$2.85; unbleached, \$1.85 to \$2.10; foreign, bleached, \$3.10 to \$3.25; unbleached, \$2.25 to \$2.40. Domestic soda fibre, bleached, \$2.15 to \$2.25, and foreign, bleached, at \$3.10 to \$3.40.



RAG AND PAPER STOCK MARKETS.

Montreal, Jan. 23, 1906.

The rag market in Europe and America remains firm, and the difficulty among manufacturers is to get the material. In consequence there is a slight advance in the average of prices. United States buyers have got hold of some large lots, and manufacturers and dealers of continental Europe are

trying to get back stock which they allowed to go out of their hands some months ago at prices which seemed tempting then, but which have been exceeded since. French manufacturers are again demanding an export duty on rags owing to the scarcity of stock for the mills.

No. 1 white shirt cuttings..	\$5.25 to \$5.75
Light print cuttings.....	4.00 to 4.50
Unbleached cuttings	4.50 to 5.00
White shoe clips.....	4.50 to 5.00
Colored shoe clips.....	2.75 to 3.25
Domestic white cottons..	2.25 to 2.50
Blues and thirds.....	1.40 to 1.50
Roofing stock .....	.70 to .80
Waste papers .....	.35 to .40
Manila rope	2.75 to 3.00
Bagging .....	.65 to .75



BRITISH PULP MARKETS.

The British market is strong for sulphite pulps, with firm prices and a scarcity of soda fibres. Bleached sells at £11 to £12 10s.; unbleached, £9 5s. to £9 15s.; common, £8 10s. to £9; soda pulp, bleached, £9 to £9 15s.; unbleached, £7 15s. to £8 15s. The market for mechanical pulp is steady at the following prices: Pine, dry, £4 7s. 6d. to £4 17s. 6d.; 50 per cent. moist, £2 10s. to £2 17s. 6d.; brown, dry, £4 7s. 6d. to £5; 50 per cent. moist, £2 5s. to £2 10s.



CHEMICAL MARKETS.

In the United States market china clay is reported firm at \$11.50 for car lots of foreign, and at \$7.50 to \$9 for domestic. Rosin is unsettled, with prices depressed owing to heavy shipments from Savannah. Barrels are quoted at 10 to 30 cents lower. Bleaching powder sells at 1¼c. upwards; caustic soda, domestic high-test, \$1.75 to \$1.80, and 10 cents more for 60 per cent. stock. Sulphur, steady at \$22.12½ to \$22.26½.

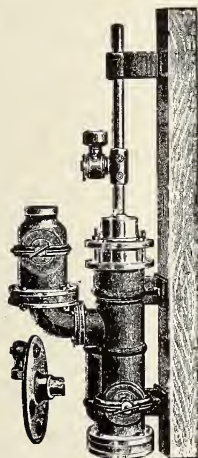
STUFF PUMP

This pump is made in three sizes, 5", 6" and 8".

The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.



Manufactured
by

T. McOUAT & SON, Lachute, Que.,

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,
Ejector Vacuum Pumps — Bertrams Limited — Patent.

DR. C. WURSTER'S Patented Pulping Machines & Kneaders

NEARLY 150 AT WORK.

LARGE PATTERN — Four Sizes.

PULPING-UP 3, 6 and 9 and 12 tons of Dry Papers or Pulp in
24 hours.

POWER—5 h.p., 8 h.p., 12 h.p. and 15 h.p.

SMALLER PATTERN—For Sorted Papers only.

PULPING-UP 2 to 3 tons of Dry Paper in 24 hours. 2 to 4 h.p.
Built in Iron.

For Better Quality Papers, Trough and Propellers made of Brass.

Special Machines for Unsorted Paper.

These Machines do not Grind, Cut-up, or Wet the Fibres, and as the State of Beating and Refining is Unaltered, neither Color nor Sizing being Affected, and Impurities not touched, "BROKE" can be Re-used for the Same Quality of Paper again.

FOR PARTICULARS APPLY TO

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.
ENGLAND.

In the British market prices are quoted as follows: Alkali, 48 per cent., £4 10s.; 58 per cent., £4 15s.; sulphate of alumina, in bags, £3 10s.; soda crystals, £3 2s. 6d. to £3 7s. 6d.; soda ash, carbonated, 48 per cent., ¼45 17s.; carbonated, 52 per cent., £6 2s. 6d.; sulphur, rolls, £6 7s. 6d.; recovered, £5 5s.; bleach, soft wood, £4 12s. 6d., f.o.b. Liverpool, or £5 5s. landed at London.



PERSONAL.

On Thursday, January 4th, Forbes Wood, manager of the Toronto Paper Company's mill at Cornwall was presented with a valuable chain and locket by the employees of the engine and sorting departments.

John Sheppard, who for the past three years has acted as superintendent of the Montrose Paper Mills, Thorold, has tendered his resignation, to take effect in February. He will return to F. G. Weeks' paper mills at Skaneateles, N.Y.

On Monday, January 8th, E. R. Vickery, manager of the Dominion pulp mill, Chatham, N.B., was presented by the employees with a gold watch chain and locket and pearl scarf pin, accompanied by an address, testifying to the happy relations existing between himself and the men.

H. B. Donovan, manager of the Toronto branch of the Canada Paper Co., is an expert in poultry as well as paper. Mr. Donovan had a fine exhibit of hens

at the Guelph Winter Fair, and carried off forty prizes, over a dozen being first prizes. Mr. Donovan's specialty is fancy varieties of bantams, of which he has some remarkable specimens of rare breeds.

R. J. Younge, late secretary of the Canadian Manufacturers' Association, is sales manager of the Canadian Rubber Company, Montreal. This is the second secretary of the Association who has been promoted to an important position in a Canadian manufacturing institution, T. A. Russell having been appointed manager of the Canada Cycle and Motor Company, a position which he has filled with unqualified success. In Mr. Younge the Canadian Rubber Company has secured a resourceful, energetic young business man, eminently qualified for the responsible position of sales manager.



WILL BRITISH PAPER MAKERS WAKE UP?

(From "Paper Making," London.)

Our attention has been called to the paper trade relations between Canada and Great Britain and the United States by an article which was recently published by our esteemed contemporary,

Machinery For Sale.

FOR SALE—Two new Black Clawson Jordan Engines. Inlet 5 in., outlets 4 in., cone 2 ft. wide, 4 ft. long. Length over all 14 ft. 8 in. Double bearings on driving end. Apply Box 11, Pulp and Paper Magazine, Toronto, Canada.

ATTERBURY BROTHERS, Incorporated.

Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

"The Pulp and Paper Magazine of Canada."

It appears that for the year ended June, 1905, the imports of various kinds of unprinted paper, cards, bags, wall papers, mill and leather boards into Canada from Great Britain only reached the total sum of \$529,384, whereas similar

imports from the United States reached the sum of \$2,273,315; and of printed papers Canada received \$325,794 worth from Great Britain, as against \$1,452,644 worth from the United States.

These figures disclose a state of trade which, considering the large trade formerly held by Great Britain, is anything

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

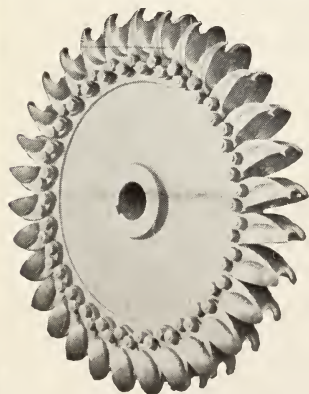
WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders,
Pumps, Heaters.

F. H. DAVIS & CO.,

161 Devonshire St.,
BOSTON, - - MASS.



Boilers, Tanks, Filters, Mill Machinery, Etc.

Sole Manufacturers in Canada of

DOBLE WATER WHEELS

AND

WORTHINGTON TURBINE PUMPS

Baker and Shevlin Screens, Etc.

John McDougall Caledonian Iron Works Co.,
Limited, Montreal, Exclusive Licensees
in Canada.

but reassuring. Our contemporary points out that some twenty-five years or so ago it was the British who held the bulk of the trade, and it considers that the change has been brought about more by the apathy of the British manufacturer than by the suitability of the United States goods for the Canadian market.

Is this apparent apathy to last? Have the paper manufacturers and exporting houses forgotten that Canada offers Great Britain a preference of 33 1-3 per cent. under their tariff?

It would appear from the figures we have quoted that no attempt is being made by this country to secure and hold that trade with our oldest colony, for considering this one-third of the tariff in our favor, we should soon see a change come over these returns if only Canada were worked by our travellers and agents in a proper and systematic manner; and the paper manufacturers of Great Britain would have a larger outlet for their papers.

Now is the British manufacturers' opportunity to once again get the balance of this trade into their hands. The field is there, and it is for Great Britain to cultivate it and reap the harvest.



JAPANESE "HAND-MADE"

Most persons are familiar with the peculiar characters of Japanese paper, which is made from the inner bark of the mulberry tree. It is seldom bleach-

ed, but made as clean as possible; hence its peculiar color. It is made up in small villages, where all the inhabitants are paper makers. The sons of paper makers follow the profession of their fathers, unless adopted into a family pursuing some other vocation. The paper mulberry tree, of which it is made, is propagated by cuttings from the roots which are planted on the borders of rice fields, and they mature in about five years. In November the reeds are cut and sold to the paper-maker, and the roots are left to send up new shoots. The shoots are cut in pieces, two feet long, piled high up and allowed to ferment, which loosens the bark so that it can be stripped off, after which they are dried in the open air, or scraped at once. The scraping removes the brown epidermis, which is used for inferior wrapping paper. About thirty-three pounds of the bark is boiled for two hours in a strong lye of wood ashes. It is then put in bags and left in a running stream until the alkali is completely removed. It is next beaten, two pounds or three pounds at a time, on a wooden block, with heavy sticks for fifteen or twenty minutes. This pulp is mixed with a little rice paste, or a paste from a series of mallow. A thin pulp is obtained by stirring one-quarter of a pound of this mass into forty or fifty gallons of water.

The web or mat on which the pulp is collected is made of slender strips of bamboo, only the thirty-sixth part of

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, 82 Beaver Street, New York.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway)	.. Kirkegaden No. 20.
GOTHENBURG (Sweden)	.. Lilla Kyrkogatan No. 20.
MANCHESTER	.. .. Guardian Buildings (opposite Exchange).
LONDON	.. .. 77a Queen Victoria Street, E.C.
PARIS	.. .. Rue de Londres No. 29.
ANGOULEME (France)	.. 43 Rue Louis Desbrandes.
LYONS	.. .. 54, Cours Gambetta.
MILAN	.. .. 24 Via Solferino
TOLOSA (Spain)	.. .. 18 Calle San Francisco.
NEW YORK	.. .. 99 Nassau Street.
ST. PETERSBURG	.. .. Little Podjascheskaja House, 4. Qu. 16.

Telegraphic Address :

“WERTHEIMO, HAMBURG.”

an inch in diameter; several hundred of these are bound together with silk thread; the rods all run lengthwise of the sheet, and hence the mats can be rolled or folded up in one direction. For coarse paper, reed mats are employed. The process of manufacture is essentially the same as in making hand-made paper. A woman sits in front of the tank and stirs it vigorously, then dips a mat and frame into the vat, takes up some of the pulp and shakes it, so as to felt the fibres together. A single dip makes a very thin tissue paper; most paper is made by dipping twice and draining each time. After the second dipping the mat is placed on end by the side of the tank to drain, the frame put on a second mat which also receives its first dipping. While the second sheet is draining for the first time the mat with the first sheet is laid face down on a pile of finished sheets, with a rice straw between them. While the second sheet is draining for a second time, the mat is taken off from the first sheet, so that only two mats are necessary. When five hundred or six hundred sheets, which form a day's work, are completed, they are pressed for a while with heavy weights, then taken up one at a time by means of the rice straw, and placed on smooth boards to dry in the sun. When dry the sheets are stripped from the board by a sharp knife, with the blade at right angles to the handle, like a sickle. The finished paper weighs about one-half as much as the bark employed.

Copying paper is collected by the middlemen from the numerous small paper makers in the villages of the paper districts, a few reams from each house, and sold to the wholesale dealers; hence, the considerable variation in the quality, which it is impossible to avoid in paper produced by such a variety of hands.

The uses to which the Japanese put paper are various in the extreme. Almost everything that is not subjected to any serious usage is manufactured from paper prepared from several chemical processes, many of which are exceedingly ingenious.—James Comp-ton & Bros., in "Paper Making."



CALENDARS.

The 1906 calendar of the Morris Machine Works, Baldwinsville, N.Y., has been received. The illustration entitled "The Strenuous Life" represents President Roosevelt on horseback, and it is typical of the American statesman.

The Peter Hay Knife Co., Galt, Ont., manufacturers of barker, chipper and paper machine knives, have sent their handsome calendar for 1906. The subject is from a painting by H. Rondel, "Evelyn," and is in every way a work of art. It is fit for any parlor.

Beauty, usefulness and publicity have been admirably combined in the 1905 calendar of the Eastwood Wire Mfg. Co., Belleville, N.J. The company enjoys a large Canadian trade owing to



JOHN KNIGHT & CO., CHINA CLAY IMPORTERS, SPRINGFIELD, MASS.

Sole Agents
for the ...

L.G.V., W.F.,



and other
Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

the superior quality of their wires and their satisfactory business methods.

"Ragged Rapids," the location of Orillia's municipal light and power plant, is the illustration contained on the calendar of "The Orillia Packet." Orillia can boast not only of wonderful power resources, but of one of the brightest and most up-to-date weekly newspapers in the Dominion.

The B. Greening Wire Mfg. Co., Hamilton, Ont., have issued a valuable calendar for 1906, which will find a prominent place in the offices of the company's many patrons. The business of the company has been in the hands of three generations of Greenings, and with this remarkable record it is not surprising that the firm is the largest of its kind in Canada.

We all like a useful calendar, and when novelty is combined with usefulness the gift is the more appreciated. Readers of this magazine should get the novel calendar announced by the Canadian Rubber Co. in their advertisement in this issue.

PAPER MILLS OF INDIA.

Paper-making on European lines seems at first sight to offer great scope, but little progress has been made. There are nine mills—four in Bengal, four in Bombay, and one in Lucknow—with a total capital of about £450,000. Two have paid no dividend for some years, and two have done fairly well. During the last ten years production has increased from 29,000,000 to 43,000,000 pounds. Most of the foolscap, and much of the note-paper, envelope, and blotting-paper used in the Government offices are now bought from the mills. The existing depression in the trade is attributed to large imports of cheap wood pulp paper, which, if less durable, is more attractive in appearance than the Indian paper made from grass, jute, cloth, etc. The chemicals required have to be imported, and they are expensive. Meanwhile, imports of paper and paste-board are increasing. The Forest Department is now enquiring as to the possibilities of supplying wood pulp for paper-making.

JULIUS FISCHER, Maschinenfabrik

gegr. 1838.

Nordhausen am Harz ca. 200 Arbeiter.

supplies as a long years and only specialty all machinery and complete installations for making surface-coloured (stained), coated, printed papers, Chromo, Art, Baryta Papers. For the preparation of gummed and marble papers. Wall paper printing and all auxiliary machinery, of the latest designs and modern construction.

First class references from all parts of the World

WIRE PULP MATS

Perforated Copper. Brass and Steel. Wire Rope. All kinds.
Wire Guards for Mill Windows. Refuse Burner Cloth, Etc.

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.

BELOIT IRON WORKS,

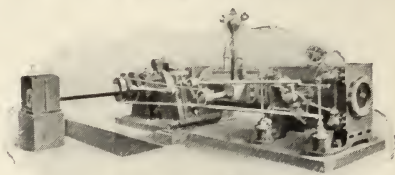
BELOIT, WIS., U. S. A.



THE JENCKES-CORLISS

On account of its close regulating qualities and adaptability to continuous running, the Jenckes-Corliss Engine is especially suited to driving Paper Machines.

Let us send you the opinion of a leading paper maker who is using one of our Corliss Engines for this purpose.



Write for Illustrated Bulletin.

The Jenckes Machine Co., Limited
SHERBROOKE, QUE.

The Waterous Engine Works Co., Limited

BRANTFORD, - CANADA.



We repair and
make over
Cylinder Moulds.

—
Cut shows a
Repaired Mould.

We Manufacture a Full
Line of

PULP MILL MACHINERY

Write for Special Catalogs.

THIS MAGAZINE is printed on our "Chalk White" Coated Book Paper—the best and whitest coated paper sold. All regular sizes and weights in stock. The Cover is our Art Litho Cover, stocked in four tints, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Windsor Mills, Que. - Montreal. - Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

J. S. YOUNG, = = Sole Agent for Canada.
413 St. Paul Street, Montreal. F

"TURBINE WATER WHEELS"

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from
S. MORGAN SMITH Co.,
YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company.....	14,000 h.p.
Montreal Cotton Company.....	7,000 h.p.
Sturgeon Falls Pulp Co.....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH,

LONDON, England.

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacturers

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

Wallace—Jaastad—Drewsen

ASSOCIATED INDUSTRIAL ENGINEERS AND CHEMISTS

JOSEPH H. WALLACE, C.E.,
M.Am. Soc. C.E., M.Can. Soc. C.E.

A. U. JAASTAD, M.E.,
Steam Engineer.

VIGGO DREWSEN, Ph. D.,
Industrial Chemist.

Pulp and Paper Mills, Power Developments, Reports, Consultation.

OFFICES AND LABORATORIES—Temple Court Bldg., New York.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland, = = Montre.

PULP AND PAPER MAGAZINE



MONTREAL AND TORONTO



VOL. 4.

TORONTO, FEBRUARY, 1906.

NO. 2

FEATURES OF THIS NUMBER

The Tariff Commission

**The Canadian Forestry Convention
—Continued Report**

The Newspaper and the Forest

A Visit to J. R. Booth's Camp

Sketch of the Late E. B. Eddy

News of the Mills and Markets

The Largest Fourdrinier Wire Plant in the World

Eastwood Wire Mfg. Co.

Belleville, New Jersey, U.S.A.

MANUFACTURERS OF

FOURDRINIER WIRES,
CYLINDER and WASHER WIRE CLOTH,
DANDY ROLLS,
CYLINDER MOULDS,
ROLLED BRASS SCREEN PLATES,
PERFECTION BRONZE (cast metal) SCREEN PLATES,
SUCTION BOX COVERS, COUCH ROLLS,
NAME PLATES,
PERFECTION BRONZE, DIGESTER CASTINGS and Y VALVES,
for the manufacture of SULPHITE WOOD PULP,
PERFECTION BRONZE VALVES, bolts and fixtures, for SUL-
PHITE PROCESS.
BRASS, COPPER and IRON WIRE and WIRE CLOTH of every
description,
BABBITT METAL and all grades of ANTI-FRICTION METAL.
BRONZE and BRASS CASTINGS, from 1 oz. to 20,000 lbs. in weight.

N. B.—We manufacture all of the above articles, and are not
merely dealers. Write for prices to

EASTWOOD WIRE MFG. CO.,
BELLEVILLE, NEW JERSEY, U.S.A.

The Largest Fourdrinier Wire Plant in the World

Foreign Phosphorbronze Fourdrinier Wires,

*Sulphite Pulps, Paper Stock and Rags,
Bleached Straw Pulp, also China Clay.*

JEAN FREESE, Vanderbilt Building **NEW YORK.**
132 Nassau Street,

FOURDRINIER MACHINE WIRES CYLINDER COVERS

Unequalled for Strength, Smoothness and Long Life.

GEORGE CHRISTIE, LIMITED

Ladywell Wire Works, **GLASGOW, SCOTLAND**

Agent—**THOMAS L. PATON,** 30 St. Francois Xavier Street, **Montreal,** who
holds stock for immediate delivery.

EDWARD J. WELCH, Pres. | **EMMONS CROCKER,** Vice-Pres. | **ARTHUR S. MORSE,** Secy.
ADAMS CROCKER, Treas. and Managing Director. | **HENRY W. S. DOWNS,** Supt.

Union Screen Plate Company of Canada, Limited.

Factory, Lennoxville, Que., Offices: { Lennoxville Que.
{ Fitchburg, Mass., U. S. A.

Screen Plates



**The "Union" Bronze (best phosphorized cast metal) Plates
for Sulphite Mills. The Standard Rolled Brass Plates.
The "Union" Cast Metal Suction Plates.**

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

We carry in stock a large supply of the different sizes of both metals and can fill large orders promptly.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

ESTIMATES ON APPLICATION.

KENWOOD FELTS AND JACKETS

Seamless Felts and Heavy 5x
Jackets for fast running machines
Super Fine Felts for Book and
Writing Papers. ∴ Pulp Felts
for Ground Wood and Sulphite
Pulp.

F. C. Huyck & Sons
ALBANY, N. Y., U. S. A.

BERTRAMS, LIMITED

Papermakers' Engineers

St. Katherine's Works,
SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermakers,
embracing British, American and Continental Improvements.

C. H. JOHNSON & SONS, Ltd

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rolls

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England.

Manufacturers of every description of

Felts and Jackets for
Pulp and Paper Mills.

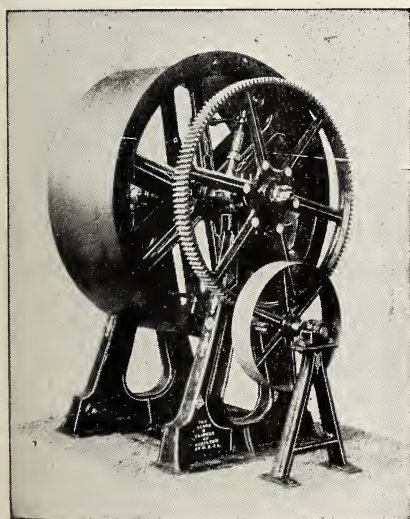
Agents for Canada: C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL.

INDEX TO ADVERTISEMENTS.

Atterbury Bros.....	41	Johnson & Sons, Limited, C. H.....	6
Beloit Iron Works.....	47	Klipstein & Co., A.....	11
Benson & Co., W. T.....	10	Kimball, Herbert S.....	9
Bentley & Jackson.....	4	Knight & Co., John.....	45
Bertram's, Limited.....	6	Lea & Coffin, and H. S. Ferguson.....	9
Black-Clawson Co., The.....	7	Little, Arthur D.....	9
Bedt & Co., F.....	10	McDougall Caledonian Iron Works, The	
Brunner, Mond & Co., Limited.....	50	John.....	42
Canada Paper Co.....	49	McQuat & Son, T.....	39
Canadian Rubber Co. of Montreal.....	8	Merriam, G. & C. Co.....	43
Castle, Gottheil & Overton.....	9	Paton, Thomas L.....	3
Cheney-Bigelow Wire Works.....	38	Perrin & Co., Ltd, Wm. R.....	42
Christie, J.....	50	Porritt & Sons, Joseph.....	10
Christie, Limited, George.....	3	Porritt & Sons, Limited, Samuel.....	50
Crawford & Co., F. H.....	42	Porritt Bros. & Austin.....	6
DeCew, J. A.....	9	Pringle & Son, T.....	9
Eastwood Wire Mfg. Co.....	2	Pulp & Paper Trading Co., The.....	38
Emerson Mfg Co.....	37	Pusey & Jones Co.....	40
Fischer, Julius.....	46	Quebec & Lake St. John Ry.....	8
Freese, Jean.....	3	Smith Co., S. Morgan.....	49
Greening, The B, Wire Co., Limited.....	46	Union Screen Plate Co.....	3
Hardy, George F.....	9	Union Sulphur Co., The.....	43
Hawthornthwaite & Sons Co., Limited, Alfred.....	12	Vogel, C. H.....	9
Hay Knife Co., Limited, Peter.....	38	Wallace-Jaastad-Drewsen.....	50
Hough, R.....	50	Waterous Engine Works Co., Ltd.....	48
Huyck & Sons, F C.....	5	Wertheim & Co., A.....	44
International Pulp Co.....	9	Whittaker, Richard.....	11
Jacks Machine Co., Limited.....	12 & 48	Wilson, Paterson & Co.....	12
		Winn & Holland.....	50
		Wurster, Dr. C.....	40
		Young, J. S.....	49

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.



Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

from new patterns and designs embodying the latest improvements.

Foot-power Perforators.

3 Roller Ink Mills.

Evaporating and Drying
Machinery.

We Solicit Correspondence.

ARCTIC CANADA.

Editor Pulp and Paper Magazine:

Sir,—Arctic Canada comprises an immense area of the continent north of Great Bear Lake, as well as the Franklin Archipelago; in all, above half a million square miles of fishery and fur-bearing territory. The profusion of animal life where the vegetation is so scanty is one of the wonders of the Polar world. But redundant and valuable as it is in a state of nature, it may be greatly improved by skill and patient development. It is not a land for the individual to cultivate, but for the nation to conserve and stock with kindred genera from other Arctic countries. If the Pacific fur seal can be crossed on the hair seal of the Atlantic it may produce a garment fit for a prince, yet at a price moderate in comparison with the Russian and Alaskan furs that excite the envy of the fashionable world. It will needs be a work of time and patience, but the reward will be pretty certain. In the domestication of the musk ox, cariboo and reindeer, blue fox, and beaver, mines of wealth may be realized. But it is in the mineral world that the greatest surprises will be likely to occur. As the lodes of placer sand of Cape Nome ex-



Honest
Value.

Complete
Satisfaction.

We Make a Specialty of Covering

**Couch, Press
and
Squeeze Rolls
For PULP and
PAPER MILLS.**

**Rubber Diaphragms
for Screens.
Deckle Straps.**

**Rubber Belting,
Packings, Valves,
Gaskets, Fire,
Steam and Water
Hose, etc., etc.**

Our Trade Mark Guarantees Quality.
**WRITE US FOR ALL Your
Requirements in Rubber.**

**The Canadian Rubber Co.
Of Montreal, Limited.**

SALES BRANCHES:

172 Granville Street, Halifax, N. S.
Imperial Bank B'dg., Montreal, Que.
Front and Yonge Sts., Toronto, Ont.
89 Princess Street, Winnipeg, Man.
402 Cordova Street, Vancouver, B.C.



This Railway runs through Two Hundred Miles of the Finest Spruce Forests in America, through a country abounding in Water Powers suitable for Pulp and Paper Mills and other industries, and of easy access to the Steamship Docks at Quebec.

ALEX. HARDY,
G.F. & P.A.

J. G. SCOTT,
General Manager

QUEBEC, P.Q.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT and ENGINEER

SPECIALIST IN

Pulp and Paper making.

F

T. PRINGLE & SON

Specialities:—Pulp Paper and Fibre Mills,
Hydraulic Developments and Electrical
Transmissions

409, 410, 411, 412 Coristine Bldg.,
MONTREAL.

F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
101 Tremont St., Boston, Mass.

Designs, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and Pyrites Burners for the Sulphite Process.

F

C. H. VOGEL

A. M. Can. Soc. C.E.

ENGINEER
OTTAWA, CAN.

WATER POWER

Paper, Pulp and Sulphite Fibre Mills

GEORGE F. HARDY, M. AM. SOC., M.E.
M. CAN. SOC. C.E.

Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of
Mill Properties, Water Power Developments.

Mutual Reserve Building, - 309 Broadway,
NEW YORK.

LEA & COFFIN,
and H. S. FERGUSON,
ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
Water Power Development and Trans-
mission. Steam Power Plants.

CORISTINE BUILDING, MONTREAL.

"Asbestine Pulp" Filler

Superior to any Clay.

Delivered price on application.

INTERNATIONAL PULP CO.

New York City, U.S.A.

tend south-west to Lake Baikal, why may they not extend in the opposite direction through the Franklin Islands to Grant and Greenland? As coal is found abundantly in many places, a

J. A. DeCew, B.A.Sc.

Consulting Chemical Engineer

SUN LIFE BLDG., MONTREAL

Agent for the Sale, Purchase, or Inspection of Technical Materials.

Tests and Reports on Lubricants, Fuels, Papers, Chemicals.

Investigations and Advice on Apparatus, Processes and Resources.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

CHINA CLAY **ROSIN,**

Best Paper
Makers' Strained

Bleaching Powder. Soda Ash.

Ultramarine Blue.

STARCHES—Highest Grade Pearl
and Potato.

FT

W. T. BENSON & Co., 164 St. James St., Montreal.

JOSEPH PORRITT & SONS, HELMSHORE NEAR MANCHESTER FELTS

and JACKETS FOR PULP and PAPER MILLS

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes



Agents for the States and Canada,

F. BRÉDÉ & CO., - 240 Water Street, NEW YORK.

moderate degree of comfort and luxury is possible, even during the long night of the frozen regions if abundant wealth can be accumulated during the brief summer.

By enlisting good men for moderate periods, with a pension for declining years the cream of Canadian vigor and talent might be available, while the very novelty of the life and labor would appeal to the romantic soul. By keeping all its possibilities in view, and testing each new theory as propounded, we will be amazed at the value of Canada's fisheries, with such an extensive icehouse at command and fuel enough to keep people comfortable.

"Lassie, go; will you go
To the realm of wealth and snow,

Where the whale and grampus blow
And the winter's given?"

—H. S. S.



—Zapon 'is the name given to a new preservative of paper products introduced by Dr. Schill, of Dresden. It is a solution of nitrated cellulose in some inexpensive solvent, amyl acetate seeming to be the best adapted for paper in sheets. When dipped in the solution or brushed with it, the paper absorbs the liquid and on evaporation of the solvent become coated with a thin film, which it is claimed resists rain, sweat and various fumes, as well as attacks of mould and bacteria and hard usage. The treated paper, unaltered in appearance, may still be written on with ink or pencil.

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal

Sulphate Alumina

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

F

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, ===== MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y

127 BOARD OF TRADE BLDG., MONTREAL.

AGENTS FOR THE UNITED ALKALI CO. OF ENGLAND

OFFER TO THE TRADE :

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.

F



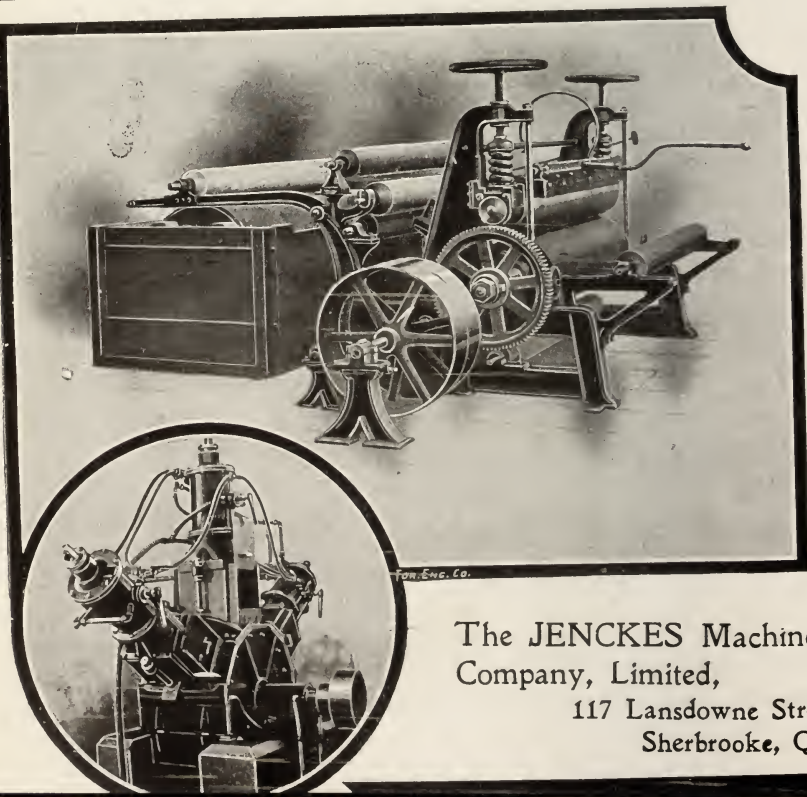
VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature, or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leathers. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Hawksworth & Sons Co., Limited,
Mill Engineers and General Furnishers,
551 St. James Street, - Montreal.



The JENCKES Machine
Company, Limited,

117 Lansdowne Street,
Sherbrooke, Que.

THE PULP AND PAPER MAGAZINE OF CANADA

OL. 4.—NO. 2.

TORONTO, FEBRUARY, 1906.

{ \$1 A YEAR.
{ SINGLE C. PY 10C.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade issued between the 15th and 20th of each month.

SUBSCRIPTIONS: Canada, Great Britain and the United States, \$1 a year; to Foreign Countries, 5s. a year. Changes of advertisements should be in the publishers' hands not later than the 10th of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

E. B. BIGGAR,
PUBLISHER

83 CONFEDERATION LIFE BUILDING, TORONTO,
CANADA.

PAPER INDUSTRY ADVOCATED.

Senator Edwards, of Ottawa, in commenting on one of the papers read before the Forestry Convention condemned the policy looking to pulp manufacturing, because it was more destructive on wood and because it did not produce enough money to the investor. He advocated the paper industry. Senator Edwards is quite right as to paper, because a paper industry is the natural outcome of pulp-making and if rumors are correct the genial senator himself may soon be among those who will demonstrate the great possibilities of this industry in Canada. It is only right to point out, however, that we cannot have a large

paper industry without a well developed pulp industry to supply it. The larger the production of pulp, and the cheaper it can be marketed, the greater the success of the Canadian paper industry. But Canada can supply a large part of the world's requirements in paper and a still larger part of its needs in pulp; and Mr. Beveridge, of Chatham, showed that even in pulp-making more money is spent than in the production of lumber, while the pulp-maker can use what the lumberman throws away and is, therefore, less destructive on timber.



FORESTRY IN QUEBEC.

The subjects of colonization, forestry and pulp-wood were prominently noticed in the speech from the throne in the Quebec Legislature: "The difficult task," says the Government, "of classifying lots of land in such manner as to separate those which are suitable for agriculture from those reserved for lumbering, has been vigorously carried on. The work so far accomplished will further a satisfactory understanding between settlers and timber limit-holders, for already disputes between their conflicting interests have almost entirely ceased. In order to group settlers on new lands certain townships whose soil is most suitable for

farming will shortly be placed at the disposal of the Colonization Department which will open up means of communication to them. My Government has not failed to take a lively interest in forestry. Our forests constitute a considerable proportion of the public wealth. Their existence is closely associated with our finances, with the success of important industries and with the preservation of a proper water supply. It is, therefore, necessary that they be protected if we wish to secure their perpetual existence while permitting of legitimate lumbering operations. In view of all these considerations, my Government has amended the regulations for their protection against fire and has also decided to create additional forest reserves in such regions as may seem suitable for the purpose." The public is not enlightened as to what methods, other than those dealing with fire, it will take to "protect" the forests and the water powers dependent on them.



ONTARIO'S PULP-WOOD POLICY.

As reported elsewhere in this issue the Premier of Ontario has announced that no more pulp-wood concessions will be given in this province in the hole-in-the-corner way they were granted by the late Government, but such concessions as are put up will be sold to the highest bidder thus giving the province the benefit of the best market price. Premier Whitney deserves honor for taking this step, for it is not every politician who fully carries out when placed in power the principles he has advocated when in opposition. No opinion is here pronounced on the claims of the several

companies whose concessions have been cancelled—no one except those who know the terms and conditions of these concessions can pronounce on the equities of each case—but the principle of holding concessionaires to the execution of a plain bargain cannot be questioned, nor should one party to an agreement be expected always to give way because that party happens to be a Government and not an individual. One element of wrong in such privately bestowed concessions given at prices ridiculously below the market value is that a few favored people are placed in a position to manufacture at prices which are ruinous to competitors who have paid a hundred cents on the dollar for their timber limits and water powers. At times when trade is depressed we know what use such favored people have made of their "pull," and on this ground alone the Premier will be publicly justified in keeping concessionaires and franchise holders to the fair fulfilment of a fair bargain.



Pulp & Paper Currency

The pulp and paper section of the Canadian Manufacturers' Association is now fully organized with Carl Riordon of the Riordon Paper Co., St. Catharines, as chairman, and F. J. Campbell of the Canada Paper Co., Windsor Mill Que., as secretary. The manufacturers were well represented at the late forestry convention at Ottawa and took sympathetic interest in the proceeding the vital connection between scientific forestry and successful pulp and paper manufacturing being clearly appreciated. There was no doubt in the minds of

Some of the pulp and paper manufacturers present that if a resolution recommending the prohibition of the export of pulp-wood from Canada had been put to the convention it would have carried; at a proposition of this kind at a convention presided over by the Prime Minister might have seemed to commit him beforehand to a policy affecting the tariff, and this reason alone would account for the fact that such a resolution does not appear in the series adopted at the close of the convention.



"Wire Bonding for Concrete Construction" is the title of an artistically printed booklet recently issued by the Greening Wire Co., Hamilton, Ont. The progress made in the past few years by the use of concrete reinforced with steel, has been so rapid, and so many of the largest building operations of recent years have been carried to completion in which this class of fire-proofing has been adopted, that at the present time a system that combines fire-resisting qualities with load-carrying capacity is readily admitted to the specifications of the most eminent architects and engineers. Greening's wire bindings are made of all strengths of material and in any lengths desired. Long lengths forming a continuous bond are features of their reinforcement. For roofs and floors of great length, the superiority of this feature is no longer questioned. The superiority of concrete construction, of stone, or cinder concrete reinforced with one or other form of steel embedded in the concrete, over any other system of fire-proof arch is now readily conceded. Other uses for reinforced concrete are floors of bridges,

and the construction of culverts, tunnels, shafts, sewers, retaining walls, and footings.



Forestry and Pulpwood

R. H. Campbell, secretary of the Canadian Forestry Association, always alive to the interests of his organization attended the convention of the Canadian Press Association and delivered a missionary address on the importance of forest questions as topics of newspaper discussion. Mr. Campbell's address will be incorporated in the Press Association's forthcoming report.

The annual report of the Lands and Mines Department of Ontario shows that the following was the timber cut for the season of 1904-5, compared with the previous season: Pine sawlogs, board measure, 625,000,000 feet, compared to 663,150,982; square logs, 1,066,989 cubic feet, against 1,953,938; pulp-wood, 73,000 cords, compared to 29,833. There were also cut last season 2,064,501 railway ties. The accrued dues aggregated \$1,142,812.92, most of which was paid before December 31st last, compared to \$1,062,810 for the season of 1903-04.

Geo. Ross, of Toronto, solicitor for the Montreal River Pulp Co., one of the pulp companies whose concessions of pulp lands have been cancelled by the Ontario Government, is making a protest against the cancellation. His company was the only one which had put up a guarantee, the amount being \$20,000, and he hoped they would be allowed to go on and carry out the terms of the agreement. He thought the price per cord of wood ought to be more permanently fixed. At present it was 40 cents, but it might at any time be raised to such a point as to make the operation of the concessionaires unprofitable.

In the Quebec Legislature the other day Mr. Girard asked the Minister of Crown Lands:—1. In what year was the

scale of prices fixed which is now charged for cutting timber on Crown lands? 2. How many millions of feet of timber were cut on Crown lands last year? 3. How many cords of pulp-wood were cut on Crown lands last year? The Hon. Mr. Turgeon replied as follows:—

1. In 1901, 2 and 3, referred to report of lands, mines and fisheries. Mr. Girard further enquired: 1. How many acres of land are there in the township of Whitton, county of Compton? 2. How many acres of land are now under timber license in the same county? To which the Minister replied that there were 75,500 acres in the township, of which 24,028 acres were under license.

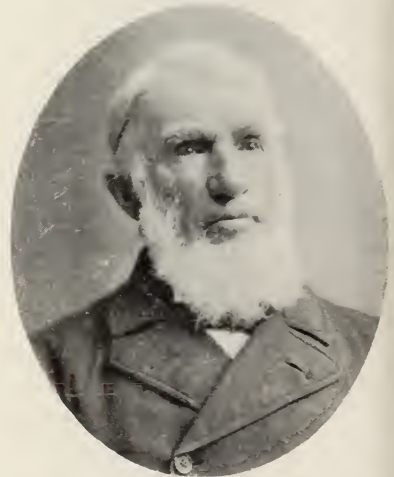
Three parcels of timber lands belonging to the estate of the late Alex. Lumsden, Ottawa, were put up at auction on the 13th. There was a large attendance of lumbermen. The Hay Bay limit of 95 square miles on the Ottawa was not sold, the highest bid, \$188,000, not reaching the reserve price. There were no bids for the limit on the Kippewawa, but the Beauchene limit on the Ottawa, an area of 155½ square miles was bought by the Hawkesbury Lumber Co. and W. C. Edwards & Co. for a lump sum of \$200,000



A DAY IN THE WOODS.

The convention of the Canadian Forestry Association last month was appropriately closed by a trip to a lumber camp, and the delegates to the convention will remember for many a year the treat given them through the Grand Trunk Railway and J. R. Booth, the host at the camp on the Madawaska. The party went out by special train on the evening of the 12th and reached the camp the next morning by a logging branch twelve miles from Madawaska station. The day was an ideal winter

day, bright and snappy, and when the party sat down to a regular lumberman's dinner in the big dining shanty it was with appetites worthy of the men of the woods. The main course and dessert were served on the same tin plate with the same steel knife and fork, and tea was drunk in the same tin pannikin which the shanty men had used an hour before, but that only gave gusto to the dinner, and Lord and Lady Grey and his party, who came with the excursionists, enjoyed the meal even more than the others, and at the conclusion of the dinner he toasted Mr. Booth with



John R. Booth.

a heartiness that proved his genuine admiration for the modest old gentleman.

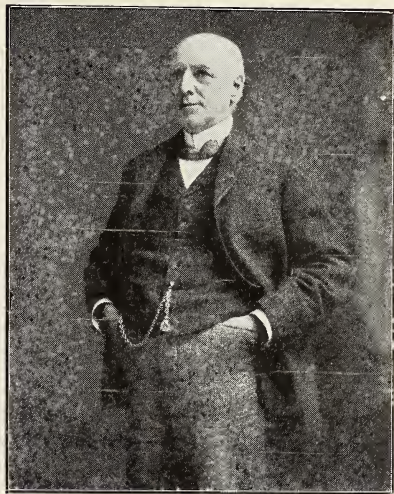
In reply to the toast Mr. Booth gave an amusing account of his acquisition of this timber limit, which he bought 15 years ago from the John Egan estate. It consisted of 270 square miles and was the first pine country he owned. When he saw the limits advertised for sale he sent up two trusty men to look over them. It then took four days to make the trip, and up to within an hour or two of the sale the men had not put in their appearance in Ottawa. Before the sale he told the auctioneer that as long as

Mr. Booth) kept his face towards him as was to be understood that he was in the bidding. When the bids got up to \$5,000 a bidder whispered to the auctioneer "to be sure of his man," because the price was beyond the value of the lot. But Mr. Booth's two inspectors had turned up before the auction started, and though they had no time to go into particulars their advice was: "Buy the lot at any price," and as he could rely on their judgment and his bank also relied on his own judgment he kept up the bidding and got the limit at \$45,000. The same gentleman who had warned the auctioneer came to him next day and offered him \$100,000 for his bargain. Against the advice of a warm personal friend he refused this offer, and had not been sorry since, for there was never a year since that time that he did not take over 150,000 logs and some years 300,000, and if fires are kept out there will be more pine logs 100 years hence than now. He would not take a million dollars for the limit to-day.

In April next Mr. Booth will have entered his 80th year, but his mind is as active as any time of his long and busy life, and he may be seen any day about his large mills, advising his men and even taking a hand with them in their work on occasion. He is up every morning at six o'clock, following the rule of his life, and works usually twelve hours out of the twenty-four. He had a family of nine children of whom four are living. When he started a little shingle mill in Ottawa over 50 years ago his late wife not only kept the household running but assisted in piling and baling the shingles. He and all his family were established workers, and as a working man himself he has had a good record as an employer. "Every man on his pay roll is his friend." As is well-known to our readers Mr. Booth is now a pulp and paper manufacturer, having in operation a new mechanical pulp mill with a capacity of 300 tons a day and having now in course of erection a paper mill with a capacity of 600 tons of news print per day.

DEATH OF E. B. EDDY.

Everyone connected with the pulp and paper industries of Canada will have read with deep regret of the death of E. B. Eddy, president of the E. B. Eddy Company, Hull, Quebec, and one of the foremost figures in Canadian industrial life, which occurred on February 10th, at his residence, "Standish Hall," Hull, after only a fortnight's illness. The late Mr. Eddy belonged to that type of sturdy American settlers who early in their lives saw the industrial opportuni-



E. B. Eddy.

ties afforded in Canada, and who threw their whole energies into business activity. Notable examples of these were Booth, Charlton, Rathbun and Bronson, whose names have become celebrated as captains of Canadian industry.

Born at Bristol, Vermont, in 1827, Mr. Eddy came to Canada in 1851, and settled at the Chaudiere, where he began the manufacture of matches by hand. About the same time J. R. Booth, the Canadian lumber king, founded his business at the same place, and for a time the two manufactured in the same building. Although things generally went

smoothly with Mr. Booth, and his business progressed without much interruption, Mr. Eddy was confronted with innumerable difficulties. As fast as he erected factories they were destroyed by fire, but he persevered undaunted until the great conflagration of 1900, which almost laid Hull in ashes, and left nothing of the splendid Eddy factories but crumbled remains and twisted iron, the remnants of all his costly machinery. Then it really seemed as though the last crushing calamity had overtaken Mr. Eddy. If the blow staggered him, he did not show it. In the old Trust building on Sparks Street, Ottawa, a conference took place, at which Mr. Eddy, Mr. Millen, the general superintendent, Mr. Rowley, the secretary-treasurer, and Mr. Gormally, the solicitor, were present. Mr. Eddy had before him a sheet of rough paper, and on this he rapidly sketched the outlines of new buildings. "Millea," he said, "I want mills here and you will have to rebuild. Rowley, I will tell you how much money we want, and you will have to raise it. Gormally, as our solicitor, I trust to you to keep us out of legal difficulties." The conference ended with each of the quartet fully apprised of the work he had to do. That the work was well done is attested by the 27 mills, all handsome and substantial, which now adorn the site of the Eddy works, employing altogether between 1,800 and 2,000 hands.

Mr. Eddy's first pulp mill was begun on March 21, 1888, and although the contractors said it would take over a year to complete the work, his push and good management resulted in the production of pulp during December of the same year. The present capacity of his paper mills is one hundred tons a day exclusive of the large assortment of paper bags manufactured.

The late Mr. Eddy was a great salesman, and stories are told of his slipping quietly away for days at a time and coming back with orders totalling fifteen

or sixteen carloads. He had often travelled Canada from end to end, and was accustomed annually to make a trip of inspection which extended from Halifax to Winnipeg. Between times he would extend his journeys to the coast. He had a great talent for organization, was a man of his word and never bore malice. Although an American by birth he was "British to the core," and had the most profound admiration for British and Canadian institutions. He thoroughly believed in the upbuilding of Canadian industries, and was an ardent advocate of an export duty on pulpwood.

His remains were interred near his birthplace at Bristol, Vermont, where a substantial monument will be erected to his memory. As an indication of Mr. Eddy's relations with his employees, it may be mentioned that nine men attended the funeral who had been in his employ for over forty years.



—Upon the death of the late John D. Hanson, woolen manufacturer, Hull, Que., his son, Geo. E. Hanson succeeded to the business. Mr. Hanson decided to go into the manufacture of pulp felts, and reorganized his business to this end. He set to work to build a larger mill, and last August moved into his new premises, which consist of two well-lighted buildings. The main building is of brick, 150 x 50 feet with 16 foot ceilings, and the other 60 x 23. Mr. Hanson runs two sets of cards, and has one felt loom taking width of 240 inches, and another of capacity of 205 inches. The mill is operated by steam power, and lighted by electricity, and employs nearly thirty hands on pulp felts and hoses. Mr. Hanson has been very successful as a manufacturer of pulp felts, and reports that he has never had any difficulty in marketing the output of 100 looms at prices which indicate a high quality of goods.

The Newspaper and the Forest

The following are extracts from the interesting paper by J. F. Mackay, business manager of the Toronto Globe, on the "Demand of the Newspaper on the Forest," read at the recent forestry convention at Ottawa. Mr. Mackay's paper was prepared as the Canadian Press Association's representative at the convention. The author is one of the charter members of the Canadian Forestry Association, and "God and Gun," which he edited, was for a time the official organ of the association:

Forestry, the author holds, affects everybody; it is as wide as the boundaries of the Dominion. There is no reason whereby any citizen of Canada could excuse himself for failing to become a member of the Canadian Forestry Association. It certainly could not be on the grounds of "no interest," for from the firewood of the humblest householder, or the maple that shelters his home, to the ties used in the giant railway enterprises of the day, or the pulp-wood for the ponderous paper machines, there is no man or class of men to whom the forest is not a friend.

It has been frequently pointed out that while the varied uses to which wood is put are steadily narrowing, the call upon the forest from year to year is for more, more, more of its product. The explanation of this is not hard to find. Coal, oil, gas and other substances are superseding wood for building; steel and cement are taking its place for structural work and for ship-building, but for the making of paper—the consumption of which grows with gigantic strides—the spruce tree owns a practically no rival.

The author then showed that forestry is second in importance to agriculture alone. Dealing, then, with the supply of wood, he said:

The statisticians for once own up to their inability to estimate, even approximately, the amount of pulp-wood stand-

ing in the Dominion to-day, but all agree that one billion cords is well within the mark, constituting easily the largest spruce forests in the world. The quality also is admitted by rivals to be the best. The enormous extent and value of this heritage we ourselves are only beginning to view in their proper proportion. Taking a billion cords as a basis, Canada is in a position to supply all the pulp-wood needed for this continent and Great Britain for at least a century, or perhaps two, unless the demand increases at a much more rapid rate than it has done in the past. But why speak of a century, or even two centuries, of pulp-wood any more than a century's supply of wheat or of fish, or any other product, which the Creator in His wisdom has made reproductive? In view of the fact that a spruce forest will reproduce itself under proper forestry regulations in thirty years, a paper mill having to-day a million cords of standing pulp-wood, from seven inches up, can justly claim to have a perpetual supply of raw material for an output of one hundred tons of paper per day. Wilful waste is as great a wrong on the part of the millionaire as on the part of the pauper, and retribution is just as likely to follow in the one case as in the other. As Canadians we must realize that we will be held strictly to account for the use or abuse we make of the resources placed at our disposal. The judgment of the future will be that we of to-day have been wise, or otherwise, as we husbanded or slaughtered this great gift of Providence.

"My task would, therefore, be an easier one were I writing probably about the beginning of the twenty-first century, instead of at the opening of the twentieth.

"Fortunately we have not far to go in seeking an object lesson as to the utter folly of defying nature's laws in these matters. The phrase, 'an inex-

haustible supply,' which we glibly use in Canada to-day in talking of our pulp forests, was just as freely used in the United States but a very few years ago. Thus chloroformed, they failed to adopt proper forest regulations, with the result that to-day they find themselves depending on foreign countries for about one-half of their annual supply of pulp-wood.

"Norway and Sweden have also failed to adopt precautionary measures, and there, too, what was once considered an inexhaustible store is now thought to be only sufficient to maintain their present consumption for a decade or thereabouts. Germany alone has properly sized up the situation, and Canada would do well to follow her footsteps as far as practicable. In Germany, over 50 per cent. of the production is done by artificial means, and this is found to be most satisfactory. After a crop has been produced there is still a chance of improving it by accelerating its development. It is possible to increase the production two to three fold by a proper use of the axe. To-day we are told by the Washington authorities that the United States will have to pay millions upon millions of dollars to buy back for forest reserves another hundred million acres of lands, their present reserves being only but 150 million acres, whereas at least 250 million acres are required. Canada will be held doubly guilty should she fail to profit by this information, for she will have sinned against greater light.

"The interest of the newspaper publisher in the preservation of the forest, while direct and vital, is one that is quite likely to be overlooked in this country. The greatest danger lies in the very fact that the supply is so enormous. It is not necessary, however, that a man must be either a prophet or the son of a prophet to foresee that unless protective and precautionary measures are adopted, it will be but a comparatively short time before the price of the publishers' raw material will begin to go up.

If it be true that the law of supply and demand regulates prices—although in this age of great trusts and combines one is likely to have his faith in this law somewhat shaken—then the price of paper must go up as the supply of pulp-wood becomes less. The demand on the spruce forest is likely to grow in the near future at a far greater rate than it has done in the past—rapid as has been the development of the pulp-wood industry. The most casual observer can see that to-day it is only in its swaddling clothes. During the past twenty-five years the number of papers issued in Canada has almost trebled, while according to the newspaper directories, the aggregate circulations have increased at even a more rapid rate. Striking as these figures are, they are likely to be far short of the increase during the next decade, in view of the rapid settlement now taking place throughout Northern Ontario, Quebec and Western Canada.

"The consumption of newspaper in Canada to-day, as nearly as it can be got at, is 30,000 tons per annum, at valuation at the printing office of about one and a half million dollars. About one and three-quarter million dollars worth of newspaper is now exported from Canada annually. Surely an industry that can show such figures is worthy of careful consideration. But it is not so much the home demand, though it is likely to devastate the land—although this will be no inconsiderate quantity shortly, and should, we think, be the first charge upon the attention of the authorities. It is the foreigner who is most to be feared. The American method of doing business is to make contracts with jobbers or squatters who acquire lots of land and skin them bare. As the land is largely worthless for farming, it becomes altogether useless, especially after the fire has once gone over it. Where this method is followed the Canadian receives about \$3.50 a cord and his land is left a wilderness. Much can be said on behalf of the proposal to put such restrictions

upon the export of the pulp-wood, especially to the United States, as will either compel its manufacture into wood-pulp or paper in this country, and thereby secure the expenditure of about \$25 or \$30 per cord on this side of the line, or, failing to accomplish this, would at least add half a million dollars annually to the Dominion revenue. I observe that the Tariff Commission was informed the other day at Three Rivers, by the representatives of one of the largest pulp and paper making concerns in Canada, that the Dominion loses \$1,792,000 annually through the export of pulp-wood to the United States. A certain portion of this money might judiciously be spent in enforcing scientific forestry regulations. Such an impost the publisher can advocate both on patriotic and selfish grounds. It will enrich and develop his country, and it will at the same time give him a wider market in which to buy his raw material. In addition to this the company with from half a million to three million dollars invested in a pulp and paper making plant is likely to become one of the most ardent advocates of the scientific forestry regulations to be found in the country, for a plant of these dimensions is not to be hawked about the country in a carpet bag. The splendid results that have followed the imposition of restrictions on the export of logs may well be cited as an additional reason why our governments should lose no opportunity in taking some steps that will tend to stop the prodigal destruction that is now so lamentable taking place in our spruce forests. One does not regard legislation of this nature with any great degree of jealousy or pride, for it is not calculated to cultivate those sentiments of amity and brotherhood which we all so much desire to see developed between the two greatest American nations; but in the words of the distinguished forester from Washington, whose addresses at the convention have been so thoroughly enjoyable, 'Forestry is a business propo-

sition,' and all we ask is, to use the familiar words of President Roosevelt, 'a square deal.' If this vast heritage must be destroyed, let it be done at the greatest possible cost to the destroyers. I hold no brief for the Canadian pulp manufacturers, but I do not believe that an export duty of one dollar per cord would reduce the price paid by the American to the jobber one cent.

When nature endowed Canada with her enormous spruce forests, her great streams and waterfalls, she intended this to be the greatest paper-making country in the world, and only man's cupidity or stupidity can prevent this from being the case. We have the authority of the Dominion statistician for the statement that forty per cent. of Canada consists of forest and that probably one-half of this is spruce. There must therefore, be about 450,000,000 acres of spruce area in Canada, and on a basis of ten tons of ground wood-pulp per acre, there are 4,500,000 tons of wood-pulp in sight in Canada. As 90,000 acres will supply the annual demand of Great Britain and the United States, it requires big figures to estimate how many years it will take to denude the Canadian forests. It is not, therefore, fear of a pulp famine that should agitate the publisher in considering this question, but the certainty of an increased cost, as his material, especially that close at hand to rail or water, grows less and less. I have lived long enough to see the price of newspaper fall from six to two cents per pound, and the subscription price of daily and weekly newspapers drop accordingly. But the signs of the times are that the pendulum will shortly swing in the other direction. The same quality of clear pine that has been sold in New York within twelve months for eighty dollars per thousand was sold for twenty dollars per thousand within the memory of men still active in business. And yet the man who would then have prophesied that such would have taken place would have been considered fit for an asylum. It is only lessons such as this

that lead one to say that newspaper publishers do not view with equanimity the destruction of the Canadian spruce forests now going on.

"Given proper forestry regulations, however, the Canadian user of newspaper may consider his lot in respect to raw material a particularly happy one.

"The following figures taken from the 12th census of the United States may be interesting as showing the extent to which that country is now drawing on Canada for the supply of pulp-wood:

	Cords	Cost.
Domestic spruce for		
ground wood ..	598,229	\$2,855,872

Domestic spruce for		
sulphite and soda		
fibre	561,889	\$2,731,070
Canadian spruce for		
ground wood ..	120,820	868,180
Canadian spruce for		
sulphite and soda		
fibre	228,264	1,404,300
	1,509,202	\$7,859,430

"To a great statesman is attributed the query 'What has posterity done for me?' I close by setting in contrast to this another quotation: 'He visiteth the sins of the father upon the children to the third and fourth generation.'"



The Forestry Convention

(Continued from last issue.)

Dr. Bell, acting director of the Geological Survey, gave a very interesting address on the alarming extent of forest fires. He spoke of his own thirty years' experience in the northern forest. Forest fires spread with alarming speed, covering millions of acres in one day. It was easy lighting these fires. In the month of July the lighting of a match would cause a fire. The air was on fire. A great many of the fires were caused by lightning. He had seen fires where there was not an Indian within 100 miles. White men were responsible for a considerable number of the fires. These fires had been going on for hundreds of years, and very little of what was original remains.

Thomas Southworth, Director of Forestry for Ontario, in a paper on "Forest Preserves and their Management," said that while legislative action to create permanent forest reserves is of comparatively recent date in Canada, the idea of reserving certain timber lands from settlement as a permanent forest estate for the Crown dates back to the earliest occupation of the coun-

try. The Governments of France never made any reserves of territory merely of timber, but apparently were willing to give the land to any of the French gentlemen who would undertake to colonize it, but with the condition that any oak timber found on the land should be reserved to the king for the purpose of the royal navy. The French Administration in Canada did not look to securing revenues from the forest. Very different instructions followed when the British took occupation of the colonies. The first action towards the establishment of forest reserves in Ontario was in 1895. There was now under reserve apart altogether from Algonquin Park 16,395 square miles, 10,493,000 acres with about \$75,000,000 worth of timber standing in these reserves. In conclusion, Mr. Southworth said the basic principle in future management of the forest reserves seems to be in keeping in view the idea of permanency and operations extending over hundreds of years. The forests, he said, constitute an important part of provincial territory, distinct from other Crown lands

In the discussion which followed, M. Butler, Deputy Minister of Railways and Canals, dealt with the starting of fires from engine sparks. He said greater care was now exercised by railway companies to prevent fires. When they did occur it was due to some negligence on the part of the employees.

Aubrey White, Superintendent of Ontario Crown Lands, said the Ontario Government had at present 300 or 400 rangers preserving forests. They were doing effective work. In the building of the Canada Atlantic Railway, with the co-operation of Mr. Booth, no serious fires occurred. The Government used the railway velocipede to guard the forests. Men followed the trains, and whenever a spark flew into the woods the watchman followed it. Mr. White affirmed that there was still fifteen billion feet of white pine left to be sold by the Ontario Government.

Dr. Fernow, of Cornell University, said there was always a delinquent, but the delinquent was generally absent. In this instance the delinquent was present. So far the name of the sinner was not mentioned. It was not the lumberman. The real sinner was the Government. As for the Dominion Government, it confessed and promised to amend for the future. The present was the time. The ground rents were one of the greatest evils. It compelled the lessee to sell sooner than he otherwise would. Forestry did not pay. The short-time element was against it. On his account it could only be carried on by the Government. In the long run it could be very profitable.

S. Dennis, director of irrigation on the Canadian Pacific Railway, sent a paper on "Forestry and Irrigation," in which he urged the need of educating public opinion to protect the forests. Forestry conserved the water supply, besides ameliorating the temperature, by making the country more habitable and better adapted for the growth of fruits and cereals. The need of the distribution of moisture in the semi-arid

region of the Rocky Mountains was indicated, and the paper told of the irrigation work that had been done in Alberta and Western Saskatchewan, and of the still greater work of this kind the C.P.R. had in contemplation. At present there were in that district 170 canals of 133 miles in extent, constructed at a cost of \$3,500,000.

The Hon. Sydney Fisher gave an address, dwelling on the value of irrigation in the North-West and the importance of keeping the eastern slopes of the Rockies in forest.

Cecil B. Smith, C.E., chairman of the Temiskaming and Northern Ontario Railway Commission, read a practical paper on "Water Powers." Referring to the damage caused by sparks from locomotives, he prophetically declared that in the near future, thanks to the water-power possibilities afforded by Canada, many of its railways, particularly those in the northern forests, would be operated by electric locomotives. He spoke of the great amount of coal brought from the States for heating and power purposes, but averred that there was a promise of better things in electrical transmission for considerable distances by water-power. There were two great drainage areas in Canada, one tributary to Hudson Sea, and the other to the St. Lawrence Valley, the population being chiefly centred in the latter. The Saskatchewan and Winnipeg rivers would soon become important from a power point of view; the former because of its relation to wheat-grinding, and the latter because of its nearness to Winnipeg. With regard to the St. Lawrence watershed, one could not help being impressed by the great number of large rivers flowing southward from the height of land. All have excellent water-powers, being regular in their run-off, and are likely to remain undisturbed for some time. Only in those cases where, situated near centres of population like Ottawa or Montreal, have they been devoted to the generation of electricity.

As regards the rivers of that portion of Ontario south of the Ottawa river, and of Quebec, south of the St. Lawrence, a less satisfactory condition prevails because of unsteady flow due to the land having been cleared to a great extent. Mr. Smith declared that 350,000 horse-power had been developed in Canada, which, including transmission lines, represented an investment of \$25,000,000 to \$30,000,000; and which, considered on a ten-hour basis, meant a saving of five tons per horse-power, or 1,750,000 tons of coal a year, as compared with 6,000,000 tons annually imported. With proper plans for development and distribution a large amount of money would be kept in the country, and industries and public utilities would benefit. The practical problems of the control of the river flow in the thickly settled parts of Ontario and Quebec he treated as grouped in three districts. In south-western Ontario the rivers, though possessing originally valuable water-powers, had no natural storage for the water except in the soil, so that the whole area has been denuded of its forests and given over to agriculture. The water-powers have, therefore, been ruined, and little can be hoped for in the way of improvement. In central old Ontario the natural condition was better, and if comprehensive action were taken great benefit to future generations would result. Much of the central plateau is unfit for farming. The bulk of it is still forest, and a large proportion remains in the hands of the Crown. As the Magnetawan, Muskoka, Severn, Moira, Mississippi, Madawaska, Petawawa, Bonnechere and Rideau rivers all have valuable water-powers near to industrial centres, Mr. Smith believes the Ontario Government should maintain the forest on the plateau, and reforest some partly cleared or cut-over districts, guard against fires, and create storage for water near the sources of the rivers. In southern Quebec, the Yamaska, St. Francis and Chaudiere rivers, he continued, pos-

sessed valuable lake storage, and there were large areas which it would pay to hold as forest reserves. The speaker said that in New Brunswick there might be similar problems, but that they were complicated by the fact that the sources of the St. John river were international in character.

A paper on the forest trees of British Columbia by Mr. Anderson, of the Crown Lands Department of that Province, was read by Mr. Joly de Lotbiniere.

The second day's proceedings opened by reading a message of encouragement from Sir Henri Joly de Lotbiniere, Lieutenant-Governor of British Columbia, and it was also announced that Byron E. Walker, general manager of the Canadian Bank of Commerce, had shown his practical appreciation of forestry by making 13 branch bank managers members of the association. Both announcements were applauded.

Dr. Wm. Saunders, director of the Dominion Experimental Farms, told of his experiments in farm forestry. Various conifers and hardwood trees had been planted on different soils and in different ways, some being planted in clumps, consisting of a single variety and others in clumps of mixed trees. Again, some were planted five feet apart and others ten feet apart. The growth under these varying conditions would be watched and noted. About 600,000 trees had been sent out to settlers from the Central Farm at Ottawa since its establishment, and about 10,000 pounds of tree seeds had been distributed also.

Rev. Father A. E. Burke, of Alton, P.E.I., read an instructive paper on farm forestry in the eastern Provinces. His own Province, known as the million acre farm, could support a population five times greater than it has, and could double its production per square mile with a sane forestry policy. He proved the ruinous effects of reckless destruction by showing that with

Jacques Cartier visited the Island in 1534 he enumerated the kinds of trees he saw, mentioning the fir, spruce, hemlock, larch, cedar, birch, elm, ash, oak, etc., where several of these trees have practically disappeared. In the smaller Provinces the dire results of such a short-sighted policy became more and more of an affliction. The new additions to the western Provinces formed a magnificent reserve, and afforded all the timber supply necessary for local requirements; the older sections began to find out the error of complete denudation, and an attempt to retrieve lost ground was discernible. Nova Scotia is a large mineral Province, and the development of these riches has occupied her attention almost entirely. Out of 13,000,000 acres scarcely 1,000,000 is given up exclusively to agriculture, and except in the alluvial stretches which form the fodder fields, the land has not been in any locality so completely denuded as to threaten the future or adversely affect either the growing capacity of her cultivated fields. A economic timber policy is greatly to be desired, moreover, and this will very beneficially affect not only the cultivated acres of to-day, but those which may to-morrow be subjected to the plough. New Brunswick is a well-wooded Province of 17,000 acres, only a very small portion of which is given up to agriculture. The growing of timber for the money in it has always been a commercial pursuit, though no systematic forestry has even been inaugurated. It is greatly to be desired that, as agriculture must play a great part in the development of the Province when the population becomes intensified, that the same system of forest preservation be everywhere resorted to. The third Province, "The Garden of the Gulf," has already suffered from the deprivation of its forests. The lands for the most part have passed from the Crown, only a small portion of the 1,280,000 acres are still in the State's possession. Father Burke concluded that the best forest protection was needed to farm the land, so that water can penetrate and

be available for crop production. If the farm area be deprived of the advantages the forest floor affords for the conservation of the water precipitated, the exposed soil hardened must shed the water superficially, and later send it into rivulets, which would carry away the rich soil. It was estimated that in the whole of Canada 200 miles of surface soil was lost every year from this cause. The value of forest as a protection from the wind and the cold would be realized when it was known that a shelter one foot in height protected a rod in width. He affirmed that a fully-equipped Federal department looking to the maintenance and extension of forestry in every portion of Canada is the necessity of the hour.

L. O. Armstrong, Canadian Pacific Railway Colonization Agent, contributed an important paper on "The Railroad and the Forest." Mr. Armstrong has been colonizing the forest lands of the Dominion for over thirty years, and was therefore, able to give much valuable information to the Convention, particularly cautioning Governments not to throw forest lands open for settlement until thoroughly inspected, even if they seem to be excellent for agricultural purposes. "No Government," he said, "ever seems to find time or to take the trouble to inspect the land, and to put the settler where he should be, and keep him there. The railroad is very much interested in this question, because it needs both the lumberman and the settler for profitable traffic, and, as 94 per cent. of the revenue of the railway is spent in the country, the railway's need is the country's need. It will not pay to plant trees on good land, but it may pay to protect and cultivate the second growth on rough land unfit for cultivation near the various railways. Some little seeding of trees might also be done under favorable conditions. Even under the most favorable conditions the railway companies would prefer to leave it to the State or to private enterprise rather than undertake it themselves, but the difficulty is

that it should and must be done now. It is the question of the day, and one that will not down. The protection of the forests, and in many localities reforestation, is imperatively necessary, and at once."

The annual consumption, which is for maintenance alone (not for construction of new lines) by the Canadian Pacific Railway Company, which will soon be only one among several trans-continental lines, is:

	Ft. B.M.
5,000,000 track ties	140,000,000
Switch ties	3,250,000
	Lin. ft.
Piling and cribbing.....	420,000
30,000 telegraph poles (cedar).	
250,000 fence posts (cedar).	

Besides this material, which is handled by the general tie agent, the C.P.R. uses annually 25,000,000 feet B.M. of British Columbia fir alone, and altogether about 75,000,000 feet B.M. of red and white pine and spruce for the building of cars, tanks, stations and bridges.

Cedar, hemlock, jack pine, tamarac and fir are the timbers used for ties. The jack pine and tamarac of the height of land in the East is harder and much better than the jack pine of the Rockies or that of more southern latitudes in the East. On the height of land jack pine proved to be the best timber available after the tamarac supply was killed by an insect; consequently, it will be seen that jack pine is our chief tie timber between Winnipeg and Fort William, and from the enormous annual consumption it is gradually diminishing. In the mountains west of Golden and the coast the quantity of jack pine supplied is very small. While white cedar is used to a very small extent, large quantities can be had in many parts of Canada, and the adoption of tie-plates will no doubt make the use of this timber more universal, because it is that one of our timbers which withstands decay longest, and it is only the soft nature of the wood which makes it unsuitable for ties

unless tie-plates are used. There are great quantities of spruce timber available, which, when it has been demonstrated that it can be creosoted economically, should make good track tie. The treating of all ties will be necessary in the not far-off future. Australian ties may put off the evil day. It is claimed for them that they have a life of twenty-eight to thirty years, but has to be shown that they will last the length of time in our climate, where frost cracks some kinds of timber and renders it almost useless.

Tree-planting can be done on the plains for ties, but it would be a very expensive crop to harvest. This must be joint work for the Government and railways.

East and west, fire is the greater enemy of the forest. We have at last begun to fight the enemy with some show of success. We have not, however, invoked the aid of the natural fire guardian to the extent that we should. We have not enlisted the services of the Indian. Let us make him feel that we are not robbing him entirely of his forest. One of the worst fires that Ontario has ever seen was lighted by an Indian, who wanted to keep the white man out of his hunting-grounds. It can still enable him to live by his forest, and that for ever. Until spoiled by contact with the white man the Indian is an exceedingly careful man about fires—a ready-made fire guard. Here is our opportunity to do him justice for past injuries.

The newspapers of the land should make extracts from Association reports showing the importance of:

- (1) Of leaving seed trees.
- (2) Of utilizing all the tree by burning the brush carefully to stop breeding of insect pests and fire.
- (3) Of improving a forest by thinning it.
- (4) Of avoiding the clearing of stony hill lands and stony lands, which should never be cleared.

(5) Of knowing how a clearing fire should be made.

(6) Of knowing how to plant the trees or seeds, and how long they will have to wait before they benefit thereby, which is not as long a time in Canada as many imagine.

In conclusion, Mr. Armstrong stated that the forests alongside of railways should receive the first attention, because the most valuable object lessons that forestry has to teach will be learnt here by a greater number of people than elsewhere; because there railways during construction, and lumbermen, and settlers, and campers, and lightning have caused fires, and made the country too often a blackened waste in the sight of all men, and its reputation suffers unjustly while this unsightliness lasts.

Norman M. Ross, assistant superintendent of forestry, told of the success of tree planting in the prairies. After the commencement of settlement many failures occurred, but they were due to the use of varieties too tender for the rugged climate. Improper methods of cultivation were also responsible for the failures in many instances. There are now plantations of more than 15 to 20 years' standing from which data on the subject can be obtained. He believed that a farmer in the West could scarcely make more money by any other means than setting apart a piece of land for a wood lot. Planting for shelter purposes is now becoming very general and in a few years a good wood crop might be expected. The native maple, or box elder, native green ash, American elm, cottonwood, Russian poplar and willow were the chief varieties planted. All these are good in some localities and for a limited number of purposes, but the ideal tree for shelter should be an evergreen. In the prairies the white spruce is perfectly hardy, also the jack pine. The live tamarac was also proving profitable, but in the nursery it was not possible to procure these kinds of trees. In the spring of 1901 the forestry branch undertook to increase the forest area of

the West. There were 58,000 trees and cuttings sent out and in 1905 the number sent out amounted to 2,000,000. After the coming spring there will be a total of 7,347,700 cuttings.

\$4.00 Per Acre.

E. J. Zavitz, lecturer on forestry in the Ontario Agricultural College, spoke on the agricultural forest problem. It was surprising to note the lack of knowledge of the value of trees. There were three reasons for protecting the forests in Ontario. Aesthetic effects, protective influences and financial investments were all arguments in favor of keeping lands wooded. No person will deny that even from the point of view of beauty trees are desirable. Then as to protection it is known that trees around the house will keep it warmer and stock thus protected needs less food than others. A field of wheat or clover protected by woodlands or protection belts will have a great advantage over the unprotected field. As fruit growing developed in Ontario it would be found that protection from wind was very necessary to the soil and to the fruit tree as well. A large percentage of the wood lots of Ontario which are on first-class soil should yield nearly one cord per acre per annum under proper management. Putting the annual increment at two-thirds of a cord, would give a rental of \$4 per acre. This compares very favorably with agriculture for the average annual rental of farm land in Ontario is \$2.94 per acre. There are Saxon forests of spruce which yield an annual net revenue of \$12 or \$15 per acre. And in Ontario sometimes people pay more for wood fuel than is paid in Germany. White oak, black walnut, chestnut, white ash, white wood, hickory, etc., which once were found in Ontario in large quantities now have to be imported for manufacturing purposes, but by the cultivation of wood lots these woods could be restored with certain profits to the grower.

Hon. W. C. Edwards, president of the Quebec Limit Holders' Association, said that between those people who held that

the forests are inexhaustible and those who say it is too late to remedy the damage done to the forests he took a medium stand. It was his opinion that much could be done and that the forests can be saved and restored to a great extent. In connection with the devastation of forests he said the general supposition is that the lumberman is the destroyer. No doubt the lumberman had a share in cutting down timber but at the same time he considered the lumberman the best friend of the forest. The railroads, for instance, had been great destroyers of the forests. We must have railways, said he, but the best methods should be employed to prevent destruction by them. Legitimate settlement also had a share in the destruction. But the greatest engine of destruction the forests had suffered from is illegitimate settlement, which was responsible for three-quarters of the forest destruction of the past. If the illegitimate settler were stopped and proper means taken the time need never come when Canada would be short of a timber supply. Next to the illegitimate squatter, the small lumberman and small speculator are the greatest enemies to the forests of Canada. The people with no permanent investment are the enemies of the woods. Within six or eight hours of the city of Ottawa he could show, he said, where the illegitimate settler in order to raise five bushels of potatoes had destroyed two million dollars of lumber. The best condition for the forest is with the lumberman who has a large and permanent investment in large holdings. Every mill owner should build his mill according to the size of his limit, and cut annually the growth, and if this were done the forests of Canada would never be destroyed. Spruce is the timber which can be perpetuated to the greatest extent, pine coming next. He had bought the Six Portages limit up the Gatineau in 1871 and at that time was by some regarded as not having made a wise investment. But he could say his firm is cutting on the limit yet.

On part of this limit was a hay farm when he had bought it, but that former farm is now covered with pine trees. His observation is that the growth varies in different districts and in regions around Ottawa the pine if carefully cut would never be exhausted. While he did not desire to retard agriculture where ever possible, it was a mistake, he continued, to allow pretended agriculture to penetrate the forests and destroy them. In the Province of Quebec there are large areas fit for nothing else but forests. From Labrador to Lake Abitibi there can be, if properly handled, a rich producing forest forever. In the Temiscamigue regions would be found the best limits of pine to-day. A mistake made as to our remote northern regions. Many believed it was a good thing to push north, but 200 miles north of here he considered there is little timber. It would be a good regulation to have every foot of timber territory put under license. The lumbermen should not cut too rapidly. By placing the territory under license, by preserving it from fire and by taking other practical means the forests could be saved. As for schools of forestry, it was his opinion that the present day schools would never have the results they ought to have. For good results in forestry education he believed the setting aside of a number of square miles of territory would be effective. Young men might be brought there given practical ideas and training and become, not first-class foresters but first-class lumbermen.

J. B. Miller, president of the Ontario Lumbermen's Association, said in speaking for the Ontario lumbermen, was of opinion that the policy of the Ontario Government has been such up to the present time that there has been encouragement for the lumberman to attempt the preservation of his timber. In fact in most localities he has been forced to cut it off as rapidly as possible to save it from the so-called settler who what he really is, the timber farmer pirate. The great bulk of the territory

om which pine timber has been cut during the last thirty years has not been good for agricultural purposes and should never have been opened up for settlement or location. A result of its being opened up for location are thousands of abandoned clearings. In a number of cases locatees denuded the land of the timber to make money enough to leave or to leave the country with. When they went they left behind them large areas of burnt country and barren rocky clearances, rendered useless for the lumbermen or for further cultivation. But the timber farmer was by long odds the greatest destroyer of timber and the most dreaded by lumbermen. Certain men who have made a business of taking hemlock bark by their methods have in some years annually destroyed fully fifty million feet of hemlock logs, meaning an economic loss to the country of fifty half a million dollars annually, besides a further large loss of revenue to the province both from no dues being paid on the bark taken out by locatees or on the timber destroyed. Besides this enormous loss through the destruction of the hemlock logs, these men destroyed immense quantities of other kinds of timber in the process of their bark cutting and so-called clearing. These facts, said Mr. Miller, go to show how hard it has been for the Ontario lumberman to do anything towards the preservation of his timber for his past and present timber regulations.

In his paper on "The Lumber Industry and the Forest," William Little said that in the last six years prices had fallen 10 per cent. in the eastern part of Canada. There was a great loss in the lumber industry was carried out. Vast areas of timber have been sold by governments to people for a trifle of their value. He knew of a man who boasted that he bought a ton limit for \$20,000 from which he sold 200,000 worth of timber and sold it for \$750,000. The selling of timber at a sacrifice was a common mis-

take of all the governments. Instead of Canada making money by lumbering, it made money by not lumbering. It was deplorable to look upon the immense losses caused by the sacrifice in timber sales. Although Canada was said to be rich in timber resources he knew of Montreal men getting lumber to build from 3,000 miles away in the United States. The lumbermen who go into the woods and chop down valuable trees which are too small for use came in for some remarks from Mr. Little, who also showed how fallacious was the notion of "inexhaustible supplies" of timber. The State of Michigan nursed this delusion till two or three years ago the people and Government of that State awoke to the fact that it had now to import for its industries most of the commercial woods of which it had been supposed they had perpetual supplies.

F. C. Whitman, president of the Western Nova Scotia Lumberman's Association, read a paper on the "Forests of Nova Scotia." He showed that the climatic conditions of his Province were favorable for a rapid growth, especially of pine and spruce. Forest tree seeds, now dutiable, should be put on the free list to encourage the re-forestation of waste lands.

Fred. Keffer, lumber manufacturer, of Vancouver, read a paper on the lumber industry of British Columbia. He advocated some arrangement for a preference to Canadian lumber in Australian and British markets. He told of the great destruction of timber in his Province by forest fires, and advocated a severe penalty to stop them.

J. F. Ellis, of the Barber & Ellis Co., Toronto, said that the price of paper for many years steadily decreased until five years ago, when it stopped. When he began business paper sold at \$200 a ton, but in twenty years it dropped to \$40. Paper has again gone up, because pulp-wood is getting dear. He said that the cutting of pulp-wood as it is going on now will mean that the forest will soon disappear. He advocated strict

laws to regulate the cutting of pulp-wood.

J. K. Osborne, of the Massey-Harris Co., Toronto, remarked that it was a fortunate thing steel had substituted wood in construction to so great an extent, or there would to-day have been a timber famine. He advised the systematic replanting for the more valuable commercial timbers.

Hon. Jean Prevost, Commissioner of Mines and Colonization of Quebec, said the Government of Quebec would willingly co-operate in any policy laid down by the Dominion authorities for the preservation of our forest areas. For his own part he would help in carrying out any patriotic measures that the Federal Government laid down. He admitted that in his own Province deforestation has already been permitted to a certain extent, but they had this excuse to offer, that they were compelled to follow this policy in order to raise the revenue needed for Provincial services. Mr. Prevost claimed credit for what the Quebec Government had already done in the establishment of forest reserves, and promised that other areas of this class would be set aside hereafter. In none of these will settlers be allowed to pitch their camps for many years to come. "We want colonization," he declared, "but we will restrict our settlers to the good lands." The policy would be to place settlers on the clay belts and keep in forest the lands unsuited to agriculture. He urged the establishment of forestry schools, aided by the Dominion and Provincial Governments.

Byron E. Walker, speaking of forestry education, said he could not anticipate the report of the Ontario Commission on the University of Toronto, but he felt quite sure the Commission would recommend the establishment of a chair of forestry, and he hoped soon to see a faculty of forestry by itself. Nature had given Canada resources which, if properly conserved, would make her the greatest manufacturing country in the world.

In a thoughtful paper on "Forestry Education," Monsignor J. U. K. L. flamme, of Laval University, said he was glad to report that last year Quebec had sent two young Canadians to the Yale Forestry School, and that when they had obtained their diplomas they would go abroad to study on the spot the forestry methods as used in France, Germany, Sweden, etc., and their return will be not only competent judges on all forestry matters, but moreover, the pioneers in the teaching of forestry. They would soon have Quebec a well-organized and complete provincial forestry school, attending primarily to local forestry problems which differ more or less from those of any other country. The people should be reached as a whole in order to interest them in the forestry question, and then the country's rulers, being always sure of the approval of public opinion, could act more energetically and quickly without being troubled by the meddling of the ignorant or interested parties. Elementary school teachers, from time to time, during outings in the neighboring woods should give their pupils sound and general data on forestry matters. In the high schools and academies, normal schools and colleges he would go a step farther, it is only right that the students should know the importance of the forestry question. Therefore, he would advise some kind of forestry training but it should be organized with tact and judgment. In conclusion, he held it of the utmost interest for all Canadians to acquire sound ideas of the forestry of their value, of the part they play in the general economy of public welfare, and consequently of the jealousy with which it is expedient to preserve and improve them.

Joseph Hobson, chief engineer of Grand Trunk Railway, in dealing with timber supplies for railways, did not anticipate a famine for some time, but the life of railway timbers, susceptible, could be prolonged greatly by antiseptic treatment. This had

recognized in the United States, where in 1894 only 950,000 ties had been anti-septically treated, while ten years later the number had increased to 13,775,000. Practically none of the ties on the G.T.R. are now obtained in the territory through which the line passes. About 50 per cent. of the quantity used is delivered at Chaudiere Junction, eight miles from Quebec. Cedar ties for the G.T.R. west of Detroit are delivered at Detroit, Mich. For the year 1905 cut of 100,000 cedar ties bought, only 150,000 were obtained outside of Canada. The companies imported into Canada are nearly all procured in Kentucky, Tennessee and Arkansas. The gross total of annual consumption of timber on the G.T.R. can be called 95,000,000 feet board measure. The large consumption of lumber for ties, fences, telegraph poles, bridges, cars, etc., would justify the Government to have the Government take action for the preservation of the forests.

Senator Edwards said he believed in a lumber policy rather than a pulp policy, because of the destructiveness of the latter on the forests. Instead of making pulp Canada should make paper, so as to secure for the country all the industry possible out of the assets.

J. S. Beveridge, manager of the Miramichi Pulp and Paper Company, stated that the lumber industry was bringing the country, and if the State was wise it would prohibit such operations as Senator Edwards carried on. In comparison he showed that only \$7 was spent on a thousand feet of lumber in Senator Edwards' mill, while \$12 was spent in the pulp factory.

Mr. Wilfrid pointed out that the industry was divided upon that phase of the lumber industry.

At the close of the convention a number of resolutions were passed, of which the following is a summary:

That the time is now ripe for a general forest policy for Canada, and that the Federal Government be asked to formulate the same;

That the retention of areas under wood and the replanting of areas unsuited for agriculture would be advanced if the local Governments and the municipalities relieved these lands of taxes;

That the public domain should be explored in advance of settlement with the object of determining the character of the lands, so that settlement may be directed to those districts suitable for agriculture and that the lands unsuited for agriculture should be permanently reserved for the production of timber;

That the Forest Reserves policy adopted by the Dominion and Provincial authorities should be extended so as to eventually embrace all lands suited only for the production of timber; and that in these reserves the cutting of timber should be done under the supervision of properly qualified officers to ensure the reproduction of the forest.

Resolved that, in view of the construction of a new Transcontinental Railway and the projection of other lines passing through coniferous forests, the attention of the governments and the railway companies be called to the serious danger of loss of valuable timber by fires; that the railway companies constructing such roads should be required to furnish an efficient equipment and control to prevent fires; that at certain seasons the lines be patrolled; and that the officers, both of the governments and the railways be required to use all possible diligence to prevent the starting or spread of fires; that in view of the great saving of timber accomplished by the fire ranging staffs organized under Dominion and Provincial authorities, this convention approves of a fire ranging system to be applied to all forested districts. This convention calls attention to the small expenditure made for the protection of the timber resources of the country in proportion to their value compared with rates of insurance paid on other public property.

Resolved, that in view of the many important respects in which the water supply affects the industries of the

country, in particular agriculture, irrigation and manufacturing, and the increasing value of the water powers owing to the adoption of electricity for industrial purposes, special means should be taken for the preservation of the forests on watersheds so as to conserve throughout the year the equable and constant flow of the streams dependent thereon.

That in view of the large expenditure on irrigation works in Southern Alberta the Dominion Government is urged to protect the forests on this watershed.

That in view of the success of the

Dominion Government's operations in the free distribution of forest tree seed in the North-West the extension of tree planting in the prairie and other regions be encouraged, and that forest tree seeds be placed on the free list.

That regulations be made for the cutting of trees by the saw instead of the axe as being less likely to lead to fires from the chips and as being a gain in the scale of the logs.

The Boards of Trade represented at the convention put on record a resolution expressing their appreciation of the importance of the meeting and the value of the lessons learned.



The Tariff Commission

The closing session of 1905 was held at Three Rivers, Que., on December 27th. George Cahoun and F. H. Russell representing the Laurentide Pulp Company operating at Grand Mere, stated that Canada loses \$1,792,000 through the export of pulp-wood to the United States, and asked that an export duty be placed on pulpwood, which would lead to its being manufactured in Canada. They further indicated the disadvantages at which Canadian manufacturers are placed compared with Americans in the matter of freight. Mr. Russell contended that the Americans could ship pulp to Australia eight cents per hundred pounds cheaper than Canada, while in Canada there was a further handicap in the matter of duties to be paid on machinery and the scarcity of skilled labor for papermaking. They would willingly pay the duty on incoming materials should an export duty be placed on pulp, in which case they could compete with the papermakers in the United States.

Being asked by Mr. Fielding what duty would be required to make the export prohibitive, Mr. Cahoun replied \$3 to \$4 per cord. He was not sure that \$2 per cord would prohibit. Mr. Cahoun

showed that the demand for news paper in Canada is limited, that the mills Grand Mere could supply all the demand and have 17,000 tons over, hence the necessity of getting to foreign markets.

F. F. Farmer, manager of the Grand Falls Company, was of the opinion that an export duty on pulp-wood would affect mill and limit owners as well as farmers injuriously, and contended that our resources in forests are unlimited provided the forests could be protected from fire.

The Commission met at New Brunswick, N.B., on January 3rd.

Hon. J. P. Birchell, addressing the Commission, said, "Some gentlemen have asked me to call your attention to the fact that there is quite an extensive business being carried on now in pulp-wood, that is, the small spruce being cut down through the country and being manufactured into pulp. We have on this river two large factories which are manufacturing pulp, and giving a large amount of employment. The question has been suggested that it may be that pulp-wood would be cut down and exported in a raw condition, depriving the province of the benefit which it

ive by manufacturing. I just bring
s matter to your notice, as it might
advisable in that case that an export
y would be put on pulp-wood to be
ported in a raw condition. It has been
suggested in Ontario, I think, that an
port duty should be put on pulp-wood,
at it is a question whether the same
e should be applied in this part of the
country.

on. Mr. Fielding: The way they
mage it in Ontario is, having control
f their own Crown lands, they make
ditions in their leases that the wood
shall be manufactured in Canada.
It can only affect Crown lands. This
pulp-wood question is rather a live one
n Quebec. We have had a general rep-
esentation that this wood should not be
ported; and on the other hand we
ay had a representation of the small
rmer who wants to clear his property
to get the pulp-wood out; which is of
importance to him. I don't think hith-
erto we have had any representation
of the Lower Provinces at all. Did
you export any considerable quantity
of this region? A. Not as great as
formerly.

Q. Your land is held almost entirely
by the New Brunswick Government,
is it not? A. It is held by the Govern-
ment and under the strict ruling no
pulp-wood must be cut on Crown lands.
It must not cut so small as that, but
there are certain sections covered with
small rough growth of spruce, which,
in the opinion of expert lumbermen will
be valuable as lumber. A special
license is given to cut that as pulp.

Q. That is where those mills get their
logs? A. Yes, and from granted
lands as well.

Q. Your local Government could put
an export duty on it. If the danger
exists in New Brunswick, even though the
Canadian Government should take no
action, your Provincial Government
is in their power to deal with
the matter? A. On Crown lands.

Q. How would the party view the

question who has bought his lands out-
right? A. I am not prepared to say.

Hon. Mr. Brodeur: What about the
settler? I know in my province there
are many settlers who go on the lands,
Crown lands or granted lands, and dur-
ing the winter they get their living out
of the cutting of that pulp-wood. Would
they favor an export duty? A. Speak-
ing for this section of the country alone,
with which I am most familiar, there
are quite a number of settlers who earn
a great deal in the winter months in that
way, but it is sold at their own door.

Q. The market is here? A. Yes, we
have two large pulp mills, one at Chat-
ham and one on this side of the river op-
posite Chatham, which consume all the
pulp-wood in this district.

Hon. Mr. Fielding: Q. Is it exported
as pulp? A. Yes.

Q. It is sometimes argued that all the
reasons applied to the export of pulp-
wood would apply to pulp? A. Yes, but
the manufacturers of pulp-wood in this
district employ quite a large number of
men. If it were also manufactured into
paper it would be an additional indus-
try, but so far as it goes it is quite an
industry.

Q. But the percentage of labor in-
volved in converting a cord of pulp-wood
into pulp is not very great, but between
pulp and paper is a great deal.

Donald Morrison: There are 3,000
cords of pulp-wood now contracted for
to go to Maine.

Hon. Mr. Fielding: Q. Heretofore it
has not been exported? Mr. Morrison:
No, not to a great extent.

Hon. Mr. Brodeur: Is it exported by
rail or water? Mr. Morrison: By rail.

Hon. Mr. Fielding: Is it cut on Gov-
ernment land or private land? Mr. Mor-
rison: I think on both.

Hon. Mr. Fielding: If it is cut on
Government land you have a control of
the remedy in your hands. If it is cut
on private lands, that could only be
reached by an export duty.

At St. John, N. B., on the 8th inst.,
H. B. Schofield, President of the Board

of Trade, and eastern representative for the E. B. Eddy Company, welcomed the commission, and later appeared before them as a witness. He referred to a new ruling of the United States department of customs on the entry of water-marked papers. Such papers must bear on each sheet the name of the country of their origin, under this order. By this many varieties of imported paper by this many varieties of imported papers were shut out of the United States. This order should also be made in Canada. It would not injure the trade in any way, for much paper is sold here just as low as in the United States. The rule would enable importers to detect where poor orders of paper come from.

Mr. Fielding—Who wants to know this and why?

Mr. Schofield—The origin of all manufactured goods should be known.

Mr. Fielding—That is a larger question.

Mr. Schofield—It is a principle which is being made to apply more and more under the protective tariff.

Mr. Schofield said there was a twenty-five per cent. duty on some grades of paper, while paper put through a second process, manufactured, is subject to thirty-five per cent. Envelopes are charged the higher rate, but bags have been singled out to come in under the low rate.

Mr. Fielding—Envelopes are a higher class of manufacture—are paper bags made largely in Canada?

Mr. Schofield—Yes.

Mr. Fielding—Then you ought to be happy. You have the trade and your only complaint is that while you are doing well, some one else is doing better. Bags are of very wide consumption, and if we increased the duty there might be many objections.

Mr. Schofield.—Then we would be pleased to see 25 per cent. applied to all papers.

Mr. Fielding thought that was a good suggestion.

Continuing their tour through western Nova Scotia the tariff commission held a session on the 17th inst. at Liverpool. John S. Hughes, of Milton, S., appeared on behalf of the pulp industry. He enquired what was the state of affairs respecting the proposed tariff on pulp-wood, and how such duty would affect the shipments of pulp to the American market. For some time the shipments of pulp from Nova Scotia had been made subject to this additional duty, but afterwards the money was turned, and the additional duty was now imposed. He feared that if export duty were imposed on pulp-wood, additional duties would be imposed in the United States against pulp which would destroy or greatly damage the Nova Scotia pulp industry. He would therefore oppose the export duty unless the Canadian Government was ready to make compensation to the pulp industry by way of bounty.

Hon. Mr. Fielding: Q. If an export duty be imposed on pulp-wood this retaliatory duty on pulp comes in operation in the United States? Mr. Hughes. A. Yes.

Q. If we prevent them getting wood free, they put extra burdens on our pulp? A. If you put a dollar on wood, they put a dollar on pulp. It is a dollar a ton for wood and a dollar on the cord.

Hon. Mr. Paterson: Q. When a dollar goes on do they put it on, or do we? A. The manufacturer pays it.

Q. If the consumer pays it, they have to pay it? A. I have to meet the American price.

Q. There is just where the point is. They put it on and the consumer pays the duty, we don't need to care. They don't.

Q. But if the producer pays it, the producer pays it, but I have to meet the market there.

Q. It is one of the exceptions to the general axiom is it? A. I have heard it at the United States' port. I meet the price of the United States.

If it were down, and down generally, we might still think we had to pay for it if the price of pulp went up there, but it would be virtually paying it. If we could sufficiently control all the trade they export, and we put an export duty on that, that would have the effect of raising the price over there sufficiently to counterbalance? A. I don't think it would.

Hon. Mr. Fielding: Q. Where are the principal sources of supply in the United States? A. Maine, New Hampshire, Vermont, and Northern New York.

Q. You think the volume produced is sufficient to control the American price? A. I think so, for a long time.

Q. And the quantity you sent in has to adapt itself to the price? A. Yes, we have always had to do that. Under the old McKinley tariff we paid \$2.50 a cord and now \$1.67.

Hon. Mr. Paterson: Q. Does it net you now? A. Yes, we were practically shut out of the market under the McKinley tariff. The European market does not take our pulp. They have to pay freight.

Q. We have to ship it in a wet state, is that? A. Yes.

Hon. Mr. Brodeur: Q. You don't ship pulp to England? A. Yes, we have exported 3,000 tons since the 1st December.

Hon. Mr. Fielding: Q. But the larger quantity goes to the States? A. The larger quantity would go to the States, as it is going now. I have two contracts that take over half my product.

Hon. Mr. Brodeur: Q. The men who were before us were paper manufacturers. A. Yes, that would suit them to a large extent because their competition for pulp would be diminished and reduced.

Hon. Mr. Fielding: Q. As a buyer of pulp you would be pleased to have an export duty, but as a seller of pulp it might be into trouble? A. Yes, but we do not export any pulp-wood from Nova Scotia.

Q. I am told there is a small quantity exported from Brunswick? A. Yes.

Hon. Mr. Paterson: Q. There is an immense quantity exported from Quebec? A. Yes.

Hon. Mr. Fielding: Q. The substance of your view is that you would fall in line with the people in the Province of Quebec who have opposed the export duty? A. Yes, unless there was some bonus given us to help us meet that retaliatory duty.

Hon. Mr. Brodeur: Q. Where do you get your supply of pulp-wood? A. All over here.

Q. And the pulp mills, where do they get their supplies? A. From east and west, and down the river, all over the country.

Q. It is done by the farmers? A. Farmers and lumbermen.

Hon. Mr. Fielding: Q. It is all cut on private land; we have practically no Government timber limits now? A. That is the only thing I have to say. I have been asked to meet the committee in Ottawa, the Manufacturers' Association, rather.

Q. You are managing the pulp mills in this vicinity? A. Yes.

Q. And you are speaking in the interests of the pulp mills? A. Yes.

Q. Not only as a shipper, but as a manufacturer of wood pulp? A. That is right.

Q. Your market being largely the United States, anything that would impose additional restrictions in the American market would be against the interests of your trade? A. Yes.

Hon. Mr. Paterson: Q. We shipped of pulp-wood last year 593,624 cords, at a value of \$2,600,814. That is a big export? A. It is a large export, yes, and the argument of those who want the export duty is that that ought to be all manufactured into pulp here?

Q. Where would they find the market? A. There is a point, of course, that would have to be considered. They would have to find a market, of course, in America outside of Canada, either one way or another, I suppose, because our own paper mills would not at present consume anything like that? A. We

manufacture now more than they consume.

Q. Do we? A. Yes, greatly.

Hon. Mr. Fielding: While we will take note of your representation, I am very glad to have them from you, because, I think, you are the only party before us in Nova Scotia on that branch. We had some in New Brunswick. They are beginning to send some pulp-wood from New Brunswick, and the question will, no doubt, get our attention later on. What other mills are there operating now? A. Nova Scotia Wood, Pulp and Paper Co., at Mill Village. Then there is the La Have Pulp Co., on the La Have, and the Sissiboo Pulp and Paper Co. at Sissiboo.

Q. Is that in operation now? A. Yes.

Q. So that with your two mills and one at Mill Village and La Have and Sissiboo there would be five? A. Yes.

Q. Those five mills would all take your view; they all want to ship to the United States? A. That is their market. Of course the mills at Weymouth ship the greater part of their product to the European market. They get cheap rates over the Dominion Atlantic Railway. They are better off in freight rates by \$1.50 per ton.

Hon. Mr. Brodeur: Q. I see there has been a large reduction in the export of wood pulp to Great Britain? A. Yes.

Q. How do you account for that? A. The market has been so low over there we could not ship. To-day they are only offering equal to about \$11 a ton laid down at Liverpool.

Hon. Mr. Fielding: Q. Do you have to compete there with Norwegian? A. Norwegian and Swedish pulp and Finland.

Hon. Mr. Brodeur: Q. That is a new industry in Norway? A. No, the Norwegians are the oldest pulpmakers in the world.

Q. You were exporting larger quantities some years ago than we are to-day? A. Yes.

Q. Then you have the competition to meet of Norway and Sweden? A. Yes,

but they have been increasing their output greatly of late years.

Q. And the freight rates are less suppose? A. Yes, just about cut in two.

Q. What about labor there? A. It is very cheap.

Q. Cheaper than here? A. Yes, they pay 40 or 50 cents for the same man pay \$1.10 or \$1.25. I visited all the mills some years ago.

Hon. Mr. Fielding: Q. Is \$1.10 the lowest price of labor? A. One dollar the lowest for boys.

Q. But for men? A. \$1.10, \$1.25, \$1.35.

Q. What would your wood average? A. Four dollars a cord. That includes everything, delivered at the mill.

Mr. Fielding said that representations had been made to the commission in favor of an export duty on pulp-wood, and other representations against such duty. In the upper provinces, however, Provincial Governments had made some regulations respecting cutting of pulp-wood on Government lands. It had been contended in the United States that this was equivalent to an export duty, and a duty should be imposed on the United States on pulp shipped from Canada. Whether this was a strictly legal view of the situation might be a matter of debate.

John G. Morton spoke of the lumber trade between this country and the United States. Lumbermen were desirous of selling their product to the United States, and found the high duty imposed there a serious drawback. He hoped that some means could be found to induce the Americans to reduce the duty.

Mr. Fielding said that he fully appreciated the fact that in this portion of the Dominion better trade relations with the United States would be a great advantage, but it was not easy to say how this could be brought about. Our American neighbors did not seem to have much desire to trade with us.

Mr. Porritt, the special representative of the "Glasgow Herald," who accompanied

anied the Tariff Commission on their journey through Canada, thinks that one of the most important questions brought before the attention of the commission was that relating to the export of pulp-wood from Canada to the United States. The matter was first brought to the attention of the commission by representatives of a number of the pulp and paper companies of Quebec, who asked that either an export duty be imposed on pulp-wood or its exportation totally prohibited. They set forth the view that the wood was worth about \$6 per cord, which, with the cost of railway carriage to the United States border, was all that Canada gets out of it. On the other hand, they showed that if the pulp-wood was manufactured into paper in Canada the finished product would sell for \$20 a ton. The pulp companies are very frank. They said they wanted the duty put on in order to prevent the American manufacturers from successfully competing with Canadian mills in British and Australian markets. They think as Canadians they are entitled to British trade. They say further that a total prohibition or a heavy export duty would in doubt close many of the mills in New York state, and cause some of them to locate on this side of the line. They pointed out that many of these American paper mills do not control any pulp-wood lands, and that without supply of stock from Canada they would be, to use an Americanism, "up against a wall."

At St. Hyacinthe a delegation of French-Canadian farmers, introduced by Armand Lavergne, M.P., who acted as their spokesman, appeared before the Commission and opposed the proposals of the pulp companies. Mr. Lavergne said that the cutting of pulp-wood was practically the only means of livelihood for French-Canadian farmers and that they had of making a little ready money in the winter season.

The question was next brought to the attention of the Commission at Newcastle, where Hon. John Burchill, a prominent lumberman, told them that he had a contract for 300,000 cords of pulp-

wood for American mills had just been made with New Brunswick parties. This, said Mr. Burchill, would be the first shipment from New Brunswick to the United States of pulp-wood, as hitherto New Brunswick mills had taken all the pulp-wood available in this Province. Mr. Burchill thought that as this marked the beginning of the export of pulp-wood from this Province, the matter should receive the careful attention of the Commission.

Mr. Fielding pointed out that while it was within the power of the Provincial Legislature to insert a clause in the Crown land leases, compelling all pulp-wood to be manufactured into paper in the Province, or Dominion, only the Dominion Government had power to impose an export duty.

Mr. Porritt thought that after the question of denying the preference to imports other than those carried through Canadian ports, this one relating to the imposition of a duty on pulp-wood was the most important that had been brought before the Commission.



Mill Matters

The Miramichi Pulp Company, Chatham, N.B., has been given power by the town council to connect their new sprinkling system to the town water system.

The Lincoln Paper Mills Company, Merriton, following the usual annual custom, distributed a six per cent. bonus among its employees on February 7th.

The loss by the recent fire in the Dominion Pulp Mill at Chatham, N.B., has been fixed at \$12,200 divided among nineteen insurance companies. Reconstruction work has already been commenced, and the mill will shortly be in running order.

In the paper on the "Pulp and Paper Industry of Canada" published in last issue an error occurred in the statistics of pulp-wood shipments. The shipments of pulp-wood over the Quebec and Lake

St. John Railway were 25,780 cords in 1904, and 31,040 cords in 1905, instead of 18,000 cords as stated.

Andre Cushing & Co., St. John, N.B., who are now manufacturing builders' paper are running their mill night and day and are turning out several tons per day.

A new company whose success would have a practical interest to the pulp manufacturers is the Canada Chemical Manufacturing Co., chartered by the Ontario Government. It has mining properties near Marmora, Ont. The iron ores there carry sulphur in undue proportion, but the company is understood to have a valuable pyrites deposit. It proposes to erect a million dollar plant employing one hundred hands in the manufacture of sulphuric acid and other by-products of the smelting industry. The company thinks it can supply the sulphite fibre manufacturers who have been dependent upon the Sicily and United States markets.

On January 27th, Judge Champagne of the Hull Superior Court, Hull, Quebec, handed out a judgment awarding the Riordon Paper Mills Company, Merriton, \$13,010 and costs in their suit against Contractor Derouin, of Hull. The suit arose out of a contract which was awarded to the defendant for cutting pulp-wood. It was claimed that as the result of figures supplied to the contractor by his culler the Riordon Company was over-charged on the contract to the amount of \$25,000. In arriving at his judgment Judge Champagne took the evidence of various contractors who lumbered in the same locality as that in which Derouin was working, and he took the average of the trees cut as the basis of his calculation as to the real amount cut by the defendant. The Judge was not able to find any plot between Derouin and his culler, McGibbon, which would warrant criminal proceedings in the matter. It is expected the case will be carried to the Court of Review, Montreal, in order, if possible, to upset the judgment.

For the convenience of their Ontario and western patrons the Jenckes Machine Company have opened an office in the Lawlor Building, corner King and Yonge Streets, Toronto, with W. G. Chater as their representative.

A Manchester firm of wood pulp merchants, now obtaining supplies from Norway would like to secure prices from Canadian manufacturers. The address of the firm may be obtained by writing to the "Pulp and Paper Magazine," Toronto.

The St. John Pulp and Paper Co. formerly the St. John Sulphite Fibre Co. has appointed John Christie, 5 King S. West, Toronto, selling agent for its products. Mr. Christie, who was also agent for the old company, is able to place on the market a high quality of pulp from the mill under its new management.

The affairs of the Kenny Paper Company, Detroit, are in the hands of a receiver, and George F. Kenny, the president of the company has mysteriously disappeared. Kenny left behind him a lot of worthless paper in the shape of personal notes. Some of Kenny's notes have loomed up in Cincinnati, one of them for \$15,000, bearing the name of Peter G. Thompson, Hamilton, Ontario as endorser.

The Canadian Rubber Co., of Montreal, Limited, have just published one of the finest trade calendars issued this year. The size is 22" x 15", and there is a sheet for each month. On every page are displayed engravings of some of the company's most noted rubber products, and this feature is very interesting, quite novel so far as the rubber companies in the Dominion are concerned. The date figures in the calendar are very large, and the banking and other holidays are shown in red. The company has issued many thousands of these calendars, put up in cartons, ready for mailing, and any business firm in the Dominion can obtain one by simply sending a written request to either the head office, Montreal, or any of its sales branches throughout Canada.

NEW COMPANIES.

The William H. Newsome Co., Limited, Toronto, capital \$40,000, has been incorporated to carry on a business of manufacturing stationers.

The Home Paper Box Co., St. Stephen, N. B., has applied for incorporation with a capital of \$5,000, to manufacture paper boxes, etc. The applicants include G. N. Ganong, A. D. Ganong, St. Stephen, N.B., and H. L. McPhail, Boston, Mass.

George Elie Amyot, Louis Joseph Adjutor Amyot, Horatio Euclide Joseph Amyot, Notre Dame de Quebec, Adelard Bertrand and Jean Louis Morency, both of Quebec, for an act to incorporate them under the name of The Canada Paper Box Company. The object of said corporation is to manufacture paper boxes. Head office will be at Quebec.

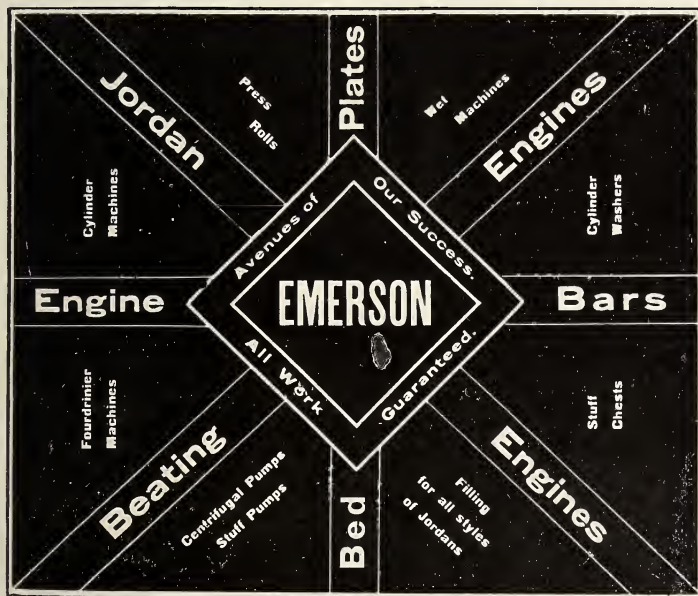
The Brantford Roofing Company, with a capital stock of \$40,000, has been formed and incorporated to manufacture

and deal in roofing materials and building papers. The head office is at Brantford, and the directors are: Daniel McHenry, Charles Lewis Millhouse, William David Schultz, George Sands Matthews, George Christian Schultz, Augustus Hartley Elliott and Joseph Cobble-dick.

Gilbert, Dunn and Woodland, Limited, Toronto, have been formed to carry on a business of manufacturing stationers. The capital stock of the company is \$40,000, and the provisional directors are: Albert Turner Gilbert and Sydney Dolmize Durham, stationers; Donald Cecil Simpson and Hugh Arthur Munro, accountants, and Clara Cassidy, book-keeper, all of the city of Toronto.

The Murray Bay Lumber and Pulp Company has been incorporated with headquarters in St. Etienne de Malbaie, Quebec, with capital of half a million. Among those interested therein are: Rodolphe Forget, M.P., T. Bienvenue, G. B. Burland and Henri Gerin Lajoie, K.C., all of Montreal.

EMERSON MFG. CO.



LAWRENCE, = = = MASS. F

PULP AND PAPER MARKETS.

Toronto, Feb. 16, 1906.

The ground wood market has remained about the same as last month with prices at \$12 to \$13 at home mills, and \$19 to \$22 delivered at United States

mills. The lack of snow in the forests which will lead to shortage of water in the spring, has served to confirm the opinion that future prices will rule higher, and some holders are not disposed to sell at present quotations. Sulphite prices range from \$1.85 to \$2.2 per cwt.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.

DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.

BARKER,
CHIPPER,
PAPER-CUTTER

MACHINE KNIVES

Of Every Description.

The Peter Hay Knife Co., Limited, Galt, Ont.

ESTABLISHED 1842.

Cheney-Bigelow Wire Works

SPRINGFIELD, MASS.

... Manufacturers of ...

FOURDRINIER WIRES

CYLINDER MOLDS, DANDY ROLLS

— ALSO —

Brass, Copper and Iron Wire Cloth

SOLE MANUFACTURERS OF THE

Bell Patent Flat Wires for Book Papers

RAG AND PAPER STOCK MARKETS.

Montreal, Feb. 15, 1906.

The market for all class of paper-making stock continues firm, with the possible exception of cotton rags:—

o. 1 white shirt cuttings..	\$5.25 to \$5.75
light print cuttings.....	4.00 to 4.50
unbleached cuttings	4.50 to 5.00
White shoe clips.....	4.50 to 5.00
Colored shoe clips.....	2.75 to 3.25
Domestic white cottons..	2.25 to 2.50
Twoes and thirds.....	1.40 to 1.50
Booting stock .....	.75 to 1.00
Waste papers .....	.35 to .40
Manila rope	2.75 to 3.00
Logging .....	.85 to 1.00



BRITISH PULP MARKETS.

The markets for both chemical and mechanical pulps remain firm at the following quotations: Sulphite, bleached, £2 to £14; unbleached, first quality, £10s. to £9 15s.; common, £8 10s. to £8 15s. Soda, first quality, £9 5s. to £10s.; common, £8 10s. to £8 15s. Mechanical pine, 50 per cent., moist £2 5 to £2 6s.; pine, dry, £4 10s. to £4 11.

STUFF PUMP

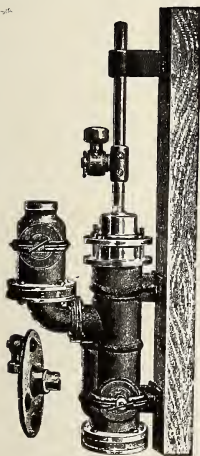
This pump is made in three sizes, 5", 6" and 8".

The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured by



McQUAT & SON, Lachute, Que.,

CHEMICAL MARKETS.

In the United States chemical markets China clay is easier than last month at \$11.00 per ton for imported and \$7.50 for domestic. The rosin market is dull throughout and sales have been light. Good and common strained were sold at \$3.90 small barrel, and \$4.05 for large. Bleaching powder is steady at 1¼c. with an upward tendency. There is no accumulation of sulphur stocks. Quotations remain between \$22.12½ and \$22.62½ per ton.



COATED PAPER DAMAGES EYES.

Anyone, says "The Cologne Volkszeitung," studying the new books and publications appearing lately will note that most German publishers are taking pains to give their productions an individual get-up. Composition, cuts, design, binding, all parts harmonize, and show a uniformity most pleasing to the eye. Particularly is it to be more insisted upon that the satin-polished, strongly glazed paper which it is customary to use, should be relinquished and thoroughly dull or even rough looking paper should replace it. For it should be known that the strongly-glazed paper is most injurious to the eyes, particularly by artificial light. To prove this, place a glazed book and a dull one side by side in the evening, and it will quickly be found how beneficial the printing on the dull paper is to the eyes. For illustrated works, the satin-paper cannot be done without, especially for photographic autotypes, as these cannot be printed on rough or dull paper. For all other books, the glazed paper should never be used. Many publishers, therefore, will not allow the illustrations to be printed in the text, unless they are incorporated with the text of the book. For these inserted pictures a glazed paper will be used, while a dull paper will be employed for the rest of the book.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,
Ejector Vacuum Pumps — Bertrams Limited — Patent.

DR. C. WURSTER'S Patented Pulping Engines and Kneaders

OVER 200 SOLD

FOR PULPING-UP

**Dry Wood Pulp, Machine "Broke," Old Paper Stock
Waste Papers.**

MADE IN THREE SIZES TO PULP THREE, SIX
AND NINE TONS DRY WOOD PULP IN
TWENTY-FOUR HOURS. — FIVE, EIGHT AND
TWELVE HORSE POWER REQUIRED.

£125, £150 and £200 c.i.f. U.K. Ports.

Beaters and Edge Runners can be filled in from one to two minutes if the pulp is first disintegrated by one of the Wurster Engines, while the output is larger with the same power. These Engines do four times the work of stones, and neither shorten, affect crease, or wet the fibre in any way, nor change the color or the sizing. They can also be used for Kneading Clay and other Fillers, and Bleaching Powder.

For full particulars apply to

**DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.
ENGLAND.**

TWENTY-EIGHTH ANNUAL MEETING.

The twenty-eighth annual meeting of the American Paper and Pulp Association was held in New York on February 8th, and was largely attended. Among other things outlined by the president, W. N. Caldwell, to be considered by the convention was "The statement of pulp manufacturers of Canada that if the Dominion would put an export duty on pulp-wood the wood could then be made into pulp in Canada and shipped out as pulp in competition with the manufacturers of the United States." A careful perusal of the report, however, reveals the fact that the subject was not placed under discussion, and this evidently indicates that the members of the Association were not yet undecided as to what action should be taken, but also most careful lest anything should be said that might bring disfavor to the Canadian manufacturers.

The report of the secretary stated that there are now 1,175 paper mills in the United States representing 753 separate concerns.

The report of the chemical fibre division contained the following:—

In the past year ninety-two mills making pulp by the sulphite process were in operation in the United States, being an increase of two mills over the number of 1904. Of this total seven mills have been devoted exclusively to the manufacture of bleached sulphite. The total output for the year 1905 has been 80 tons per day, which is an increase



TENDERS FOR Pulpwood Concessions.

Tenders will be received by the undersigned up to and including the 18th day of April next, for the right to cut pulpwood on certain areas tributary to the Montreal River, in the District of Nipissing, the Nepigon River in the District of Thunder Bay, the Rainy Lake, the Wabigoon River and the Lake of the Woods, all in the District of Rainy River. Tenderers should state the amount they are prepared to pay as bonus in addition to such dues as may be fixed from time to time for the right to operate a pulp or pulp and paper industry on the areas referred to. Successful tenderers will be required to erect mills on the territories and to manufacture the wood into pulp in the Province of Ontario.

Parties making tenders will be required to deposit with their tender a marked cheque, payable to the Treasurer of Ontario, for 10% of the amount of their tender, to be forfeited in the event of their not entering into agreements to carry out conditions, etc. The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital required to be invested, etc., apply to the undersigned.

HON. F. COCHRANE,

Minister of Lands and Mines,

TORONTO, ONT.

Machinery For Sale.

FOR SALE—Two new Black Clawson Jordan Engines. Inlet 5 in., outlets 4 in., cone 2 ft. wide, 4 ft. long. Length over all 14 ft. 8 in. Double bearings on driving end. Apply Box 11, Pulp and Paper Magazine, Toronto, Canada.

ATTERBURY BROTHERS, Incorporated.

Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

of about 425 tons daily. Of this output 3,150 tons is estimated to be unbleached sulphite, and the balance of 650 tons bleached sulphite. For the year 1904 the total amount of unbleached sulphite produced daily was 2,775 tons, while of bleached sulphite there were 600 tons daily.

"Upon the whole prices were maintained for unbleached pulp, ranging for the best grades in the neighborhood of cents and above per pound, delivered. Some sales were reported during the dull summer months, and prices as low as $1\frac{3}{4}$ cents per pound delivered, while even figuring at the lowest price of

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

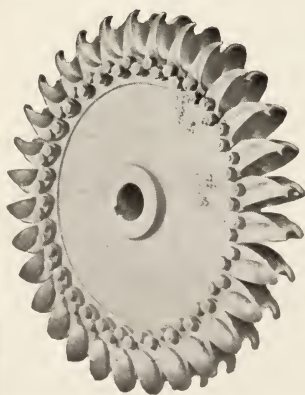
WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders
Pumps, Heaters

F. H. DAVIS & CO

161 Devonshire St.,
BOSTON, - - MASS.



Boilers, Tanks, Filters, Mill Machinery, Etc

Sole Manufacturers in Canada of

DOBLE WATER WHEEL

AND

WORTHINGTON TURBINE PUMP

Baker and Shevlin Screens, Etc.

John McDougall Caledonian Iron Works Co
Limited, Montreal, **Exclusive Licensees**
in Canada.

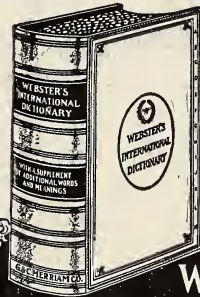
of wood, leaves absolutely no margin for the manufacturer. Toward the demand improved, and prices became more firm. For the slow cooked process, or Mitscherlich make, which requires more to produce, higher prices are obtained, and these range from 2.30 to 2.42 cents per pound, delivered at the paper mill.

The Canadian mills show an increase in production of 80 tons per day, production for the year 1905 having been at the rate of 380 tons per day as against 300 tons for the year 1904, thus not equalizing the production of the year 1903. There have been no new sulphite mills started in Canada during the year 1905.

In the year 1905 we imported from Norway, and other parts of the world 40,721 tons of pulp, as against 38,000 tons for the year 1904, showing a reduction of 152 tons in the total of importations for the year. The value of importations in the year 1904 was \$7,956, while the value of importations in the year 1905, less in tonnage than in the year 1904, was \$2,085,718, indicating an importation of higher priced pulp and due to the decreased amount of unbleached sulphite imported during the past year. Probably not more than 100,000 tons of the importations of last year was unbleached sulphite, the bulk of the importations being unbleached. From British North America we imported during the past year 111,839 tons, as against 119,236 tons during the year

1904, showing a decrease of 7,397 tons. The value of these importations for the year 1905 was \$2,442,529, as against

GET THE BEST



GRAND PRIZE
Highest Award
WORLD'S FAIR
ST. LOUIS

**WEBSTER'S
INTERNATIONAL
DICTIONARY**

Recently Enlarged
WITH
25,000 New Words
New Gazetteer of the World
with more than 25,000 titles, based on the latest census returns.

New Biographical Dictionary
containing the names of over 10,000 noted persons, date of birth, death, etc.

Edited by W. T. HARRIS, Ph.D., LL.D.,
United States Commissioner of Education.

2380 Quarto Pages
New Plates. 5000 Illustrations. Rich Bindings.

Needed in Every Home

Also Webster's Collegiate Dictionary	
1116 Pages.	1400 Illustrations.
Regular Edition 7x10x2½ inches. 3 bindings.	
De Luxe Edition 6¾x8¾x1½ in. Printed from same plates, on bible paper, 2 beautiful bindings.	

FREE, "Dictionary Wrinkles," Illustrated pamphlets.

G. & C. MERRIAM CO.,
Publishers, Springfield, Mass.

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, 82 Beaver Street, New York.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway)	..	Kirkegaden No. 20.
GOTHENBURG (Sweden)	..	Lilla Kyrkogatan No. 20.
MANCHESTER	.. ..	Guardian Buildings (opposite Exchange)
LONDON	.. .. .	77a Queen Victoria Street, E.C.
PARIS	.. .. .	Rue de Londres No. 29.
ANGOULEME (France)	..	43 Rue Louis Desbrandes.
LYONS	.. .. .	54, Cours Gambetta.
MILAN	.. .. .	24 Via Solferino
TOLOSA (Spain)	.. .. .	18 Calle San Francisco.
NEW YORK	.. .. .	99 Nassau Street.
ST. PETERSBURG	.. ..	Little Podjascheskaja House, 4. Qu. 16.

Telegraphic Address :

"WERTHEIMO, HAMBURG."

12,364, showing an increase in the
 of importations from Canada dur-
 the past year of \$130,165. If we take
 account with this the fact that the
 age decreased over 7,000 tons, we
 readily see that more unbleached
 white was imported at a higher price
 a considerably less ground wood than
 the past year. This is corrobor-
 by the fact that water power has
 so abundant in this country that
 ground wood mills have been able
 in uniformly full."



ONTARIO PULP-WOOD CON- CESSIONS.

Following the announcement that in
 the pulp-wood concessions will be
 posed of by tender, the Whitney
 Government has cancelled five conces-
 sions issued by the late Ross Govern-
 ment on the ground of non-fulfillment
 of terms. Advertisements calling for
 tenders for concessions in the areas cov-
 ered by the lapsed agreements have been
 issued by the Department of Lands and
 Forests, the last date for receiving such
 tenders being April 18th next. The areas
 in which concessions are to be granted
 are contiguous to the Montreal River, in
 the Mississauga District; the Nepigon Riv-
 er in the Thunder Bay District; Rainy
 Lake, Wabigoon River, Lake of the
 Woods, the three latter being in the
 in the River District. The agreements
 cancelled are with the Nepigon Pulp,
 Paper and Manufacturing Company,
 dated in April, 1900, superseding an

agreement entered into in 1896; the Kee-
 watin Power Company, April 1901; the
 Montreal River Pulp and Paper Com-
 pany, the Dryden (Ont.) Board Mills
 Company. In this connection it may
 also be said that the Government has
 also cancelled the lease to the Blanche
 River Pulp and Paper Company of wa-
 ter power and 104 acres of land in con-
 nection therewith, at La Cave Rapids,
 on the Ottawa River, just above the
 town of Mattawa, owing to the failure
 of the company to pay rentals for same.
 The lease was made in connection with
 a pulp concession to the company nam-
 ed. The company is not operating its
 concession.

Heretofore, the policy has been to
 grant concessions for a nominal sum,
 and nobody except the parties interested
 in the transaction actually knew that a
 transfer of pulp-wood land was pending
 until the actual deal was closed, and the
 agreement presented to Parliament for
 ratification. It is estimated in some
 quarters that the Province lost many
 thousand dollars by this method of
 granting concessions as public compe-
 tition would have greatly increased the
 amount of the bonuses received. In ad-
 dition to the higher price thus obtained
 the concessions would invariably have
 gone to the companies that were in a
 position to immediately undertake the
 manufacture of pulp and paper in the
 Province, and lapses such as have now
 occurred would have been impossible.
 Besides the bonuses parties receiving
 concessions will be required to pay the
 present dues of 40 cents a cord on spruce



REGISTERED.

JOHN KNIGHT & CO., CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents
 for the

L.G.V., W.F.,



and other
 Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any
 artificial tinting.

For Coating. Bleaching or Fine Papers it is unsurpassed.

and 10 cents a cord on poplar and jack pine.

The Government also announces that in future concessionaires will not be allowed to cut anything less than eight inches in diameter at the stump, as against a former restriction of six inches. The boundaries of the area under concession will be strictly defined, and the cutting and other work will be under close supervision of Government officials. Rangers will safeguard the areas against fire. Successful tenderers will be required to erect mills on their respective concessions, as in the case of the old agreements, and to manufacture pulp in the province. The department will decide as to the amount of capital to be invested in each concern and other details required.

It is to be hoped that in the carrying out of their pulp-wood policy the Government will arrange for a practical system of reforestation in order to insure a perpetual supply of pulp-wood and thus place the pulp and paper industries of the Province on a sound and permanent basis.

CALENDARS.

The Black-Clawson Company, Hamilton, O., has issued a handsome desk calendar for 1906. It is a crystaloid mount, the upper portion which bears an "Asti" head in color beneath which is the legend "Companiments of the Black-Clawson Company, builders of paper and pulp mill machinery, Hamilton, Ohio," and beneath these are the monthly pads framed in metal. The corners of the mount are protected by ornamental metal pieces. The calendar is both useful and ornamental.



—A reference book invaluable to home libraries and business offices is the new edition of Webster's International Dictionary published by the G. & Merriam Company, Springfield, Massachusetts. The latest edition includes 25,000 new words in addition to a gazetteer of the world, and a biographical dictionary. Specimen pages are sent by the publishers on application.

JULIUS FISCHER, Maschinenfabrik

gegr. 1838.

Nordhausen am Harz ca. 200 Arbeiter.

supplies as a long years and only specialty all machinery and complete installations for making surface-coloured (stained), coated, printed papers, Chromo, Art, Baryta Papers. For the preparation of gummed and marble papers. Wall paper printing and all auxiliary machinery, of the latest designs and modern construction.

First class references from all parts of the World

WIRE ROPE

All kinds and sizes, and for all purposes. Standard and Lang's Patent Lay.

PRICES RIGHT.

Rope Fittings.

PROMPT SHIPMENTS

Rope Grease.

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

**Guaranteed the most serviceable and efficient
of any built.**

**Modern Designs, New Patented Ideas,
Used Exclusively by us.**

**Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.**

BELOIT IRON WORKS,

BELOIT, WIS., U. S. A.



Announcement

For the greater convenience of our patrons in Ontario and Manitoba we have opened a Sales Office at 12 Lawlor Building, corner King and Yonge Streets, Toronto, Mr. W. G. Chater, Representative.

Correspondents in Ontario and Manitoba are requested to address themselves there and are cordially invited to call when in Toronto.

The Jenckes Machine Co., Limited

TORONTO

HALIFAX

Head Office: SHERBROOKE, Que.

Works: Sherbrooke, Que.
St. Catharines, Ont.

ROSSLAND

VANCOUVER

The Waterous Engine Works Co., Limited

BRANTFORD, - CANADA.



We repair and
make over
Cylinder Moulds

Cut shows a
Repaired Mould

We Manufacture a Full
Line of

PULP MILL MACHINERY

Write for Special Catalogs.

THIS MAGAZINE is printed on our "Chalk White" Coated Book Paper—the best and whitest coated paper sold. All regular sizes and weights in stock. The Cover is our Art Litho Cover, stocked in four sizes, 2 sizes, 20 x 25 and $21\frac{1}{2} \times 28\frac{1}{2}$. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Windsor Mills, Que. - Montreal. - Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

J. S. YOUNG, - - Sole Agent for Canada.

413 St. Paul Street, Montreal.

F

"TURBINE WATER WHEELS"

Giving the **FASTEST** speed, **GREATEST** power and **HIGHEST** efficiency from water at part and full gate,

can be purchased from

S. MORGAN SMITH Co.,
YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company,	14,000 h.p.
Montreal Cotton Company,	7,000 h.p.
Sturgeon Falls Pulp Co.....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

Wallace—Jaastad—Drewsen

ASSOCIATED INDUSTRIAL ENGINEERS AND CHEMISTS

JOSEPH H. WALLACE, C.E.,
M.Am. Soc. C.E., M. Can. Soc. C.E.

A. U. JAASTAD, M.E.,
Steam Engineer.

VIGGO DREWSSEN, Ph.
Industrial Chemist.

Pulp and Paper Mills, Power Developments, Reports, Consultation.

OFFICES AND LABORATORIES—Temple Court Bldg., New York.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland, = - Montr

PULP AND PAPER MAGAZINE

MONTREAL AND TORONTO

VOL. 4.

TORONTO, MARCH, 1906.

NO. 3

FEATURES OF THIS NUMBER

**Working Against the Canadian
Trade—A Memorandum by Mr.
Booth**

**Statement by the Laurentide
Paper Co. on the Pulp Wood
Question**

Excess of Alum in Paper

Paper from Hemp Waste

Wastes from Pulp and Paper Mills

Forests and Water Powers

New Brunswick Pulp Wood Policy

New Patents, Mill News, Etc.

The Largest Fourdrinier Wire Plant in the World

Eastwood Wire Mfg. Co

Belleville, New Jersey, U.S.A.

MANUFACTURERS OF

FOURDRINIER WIRES,
CYLINDER and WASHER WIRE CLOTH,
DANDY ROLLS,
CYLINDER MOULDS,
ROLLED BRASS SCREEN PLATES,
PERFECTION BRONZE (cast metal) SCREEN PLATES,
SUCTION BOX COVERS, COUCH ROLLS,
NAME PLATES,
PERFECTION BRONZE, DIGESTER CASTINGS and Y VALVES
for the manufacture of SULPHITE WOOD PULP,
PERFECTION BRONZE VALVES, bolts and fixtures, for SULPHITE PROCESS.
BRASS, COPPER and IRON WIRE and WIRE CLOTH of every description,
BABBITT METAL and all grades of ANTI-FRICTION METAL.
BRONZE and BRASS CASTINGS, from 1 oz. to 20,000 lbs. in weight.

N. B.—We manufacture all of the above articles, and are merely dealers. Write for prices to

EASTWOOD WIRE MFG. CO.,

BELLEVILLE, NEW JERSEY, U.S.A.

The Largest Fourdrinier Wire Plant in the World

Foreign Phosphorbronze Fourdrinier Wires,

*Sulphite Pulps, Paper Stock and Rags,
Bleached Straw Pulp, also China Clay.*

JEAN FREESE, Vanderbilt Building
132 Nassau Street, **NEW YORK.**

FOURDRINIER MACHINE WIRES CYLINDER COVERS

Unequalled for Strength, Smoothness and Long Life.

GEORGE CHRISTIE, LIMITED

Ladywell Wire Works, **GLASGOW, SCOTLAND**

Agent—**THOMAS L. PATON**, 30 St. Francois Xavier Street, **Montreal**, who
holds stock for immediate delivery.

EDWARD J. WELCH, Pres. | EMMONS CROCKER, Vice-Pres. | ARTHUR S. MORSE, Secy.
ADAMS CROCKER, Treas. and Managing Director. | HENRY W. S. DOWNS, Supt.

Union Screen Plate Company of Canada, *Limited.*

Factory, Lennoxville, Que., Offices: { Lennoxville, Que.
Fitchburg, Mass., U. S. A.

Screen Plates



The "Union" Bronze (best phosphorized cast metal) Plates
for Sulphite Mills. The Standard Rolled Brass Plates.

The "Union" Cast Metal Suction Plates.

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

We carry in stock a large supply of the different sizes of both metals and can fill large orders promptly.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address :

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

ESTIMATES ON APPLICATION.

KENWOOD FELTS AND JACKETS

Seamless Felts and Heavy 5x
Jackets for fast running machines.
Super Fine Felts for Book and
Writing Papers. ∴ Pulp Felts
for Ground Wood and Sulphite
Pulp.

F. C. Huyck & Sons
ALBANY, N.Y., U.S.A.

BERTRAMS, LIMITED

Papermakers' Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermaking
embracing British, American and Continental Improvements

C. H. JOHNSON & SONS, LTD.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rollers

PORRITT BROS. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

Agents for Canada : C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL

INDEX TO ADVERTISEMENTS.

Barbury Bros.....	41	Kimball, Herbert S.....	9
Bell Iron Works.....	47	Knight & Co., John.....	45
Benson & Co., W. T.....	10	Lea & Coffin, and H. S. Ferguson.....	9
Bentley & Jackson.....	4	Little, Arthur D.....	9
Bertram's, Limited.....	6	McDougall Caledonian Iron Works, The	
Black-Clawson Co., The.....	7	John.....	39
Bilt & Co., F.....	10	McQuat & Son, T.....	46
Binner, Mond & Co., Limited.....	50	Mears, D'Oyley & Co.....	43
Canada Paper Co.....	49	Merriam, G. & C. Co.....	43
Canadian Rubber Co. of Montreal.....	8	Paton, Thomas L.....	3
Cale, Gottheil & Overton.....	9	Perrin & Co., Ltd., Wm. R.....	42
Chey-Bigelow Wire Works.....	45	Porritt & Sons, Joseph.....	10
Cistie, J.....	50	Porritt & Sons, Limited, Samuel.....	50
Cistie, Limited, George.....	3	Porritt Bror. & Austin.....	6
Cris & Co., F. H.....	42	Pringle & Son, T.....	9
Crew, J. A.....	9	Pulp & Paper Trading Co., The.....	45
Crawford Wire Mfg. Co.....	2	Pusey & Jones Co.....	40
Croftson Mfg Co.....	39	Quebec & Lake St. John Ry.....	8
Crother, Julius.....	46	Riordon Paper Mills.....	41
Croise, Jean.....	3	Smith Co., S. Morgan.....	49
Croening, The B., Wire Co., Limited.....	46	Union Screen Plate Co.....	3
Croley, George F.....	9	Union Sulphur Co., The.....	43
Crooksworth & Sons Co., Limited, Alfred.....	12	Vogel, C. H.....	9
Crook Knife Co., Limited, Peter.....	45	Walker, J. R.....	46
Crook, R.....	50	Wallace-Jaastad-Drewsen.....	50
Crook & Sons, F. C.....	5	Waterous Engine Works Co., Ltd.....	48
Crook National Pulp Co.....	9	Wertheim & Co., A.....	44
Crook Machine Co., Limited.....	12 & 48	Whittaker, Richard.....	11
Crook & Sons, Limited, C. H.....	6	Wilson, Paterson & Co.....	12
Crookstein & Co., A.....	11	Winn & Holland.....	50
		Wurster, Dr. C.....	40
		Young, J. S.....	49

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.

Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

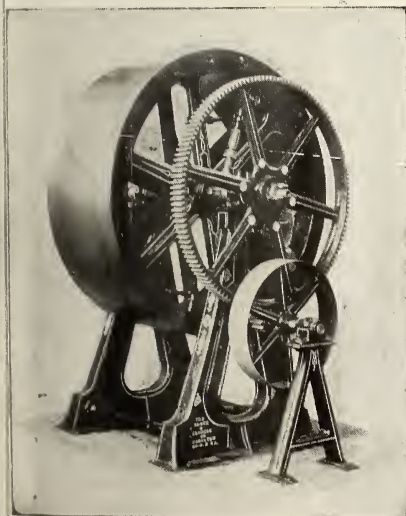
from new patterns and designs embodying the latest improvements.

Foot-power Perforators.

3 Roller Ink Mills.

Evaporating and Drying
Machinery.

We Solicit Correspondence.



Honest
Value.



Complete
Satisfaction.

We Make a Specialty of Covering

**Couch, Press
and
Squeeze Rolls**

**For PULP and
PAPER MILLS.**

**Rubber Diaphragms
for Screens.
Deckle Straps.**

**Rubber Belting,
Packings, Valves,
Caskets, Fire,
Steam and Water
Hose, etc., etc.**

Our Trade Mark Guarantees Quality.
**WRITE US FOR ALL Your
Requirements in Rubber.**

**The Canadian Rubber Co.
Of Montreal, Limited.**

SALES BRANCHES:

172 Granville Street, Halifax, N. S.
Imperial Bank Bldg., Montreal, Que.
Front and Yonge Sts., Toronto, Ont.
89 Princess Street, Winnipeg, Man.
402 Cordova Street, Vancouver, B. C.

FIFTY YEARS MAKING PAPER

The man who has been the longest in the business as a paper manufacturer in Canada, says the "Montreal Witness," Joseph Ford, of Portneuf, Quebec. Fifty-six years ago Mr. Ford came to Canada from England in a sailing ship. His home was near Manchester, and his father was engaged in the paper business before him. On his arrival in the country Mr. Ford entered the employ of Mr. Angus McDonald, whose paper mills were at Portneuf, and ten years later he started business for himself on the same line. He has kept abreast of the times, and has prospered in his enterprises. Six years ago he purchased the mills and interests of the firm he first worked for in Canada, and took over under the firm name of Joseph Ford & Co., he operates five paper mills, and controls or owns about six million acres of timber and cleared lands. He manufactures all his paper from wood-pulp, and does an exclusive wholesale business, including some export trade.

Mr. Ford, in speaking to a "Witness" reporter recently, remarked that what there was much more paper used in the country than formerly, competition had forced the price down, and the quality as well. Paper used to be about twelve cents a pound; to-day it was about two cents, but the news print manufactured in



This Railway runs through Two Hundred Miles of the Finest Spruce Forests in America, through a country abounding in Water Powers suitable for Pulp and Paper Mills and other industries, and easy access to the Steamship Docks at Quebec.

ALEX. HARDY,
G.F. & P.A.

J. G. SCOTT,
General Manager

QUEBEC, P. Q.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT and ENGINEER

SPECIALIST IN

Pulp and Paper making.

F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
101 Tremont St., Boston, Mass.

Designs, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and Pates Burners for the Sulphite Process.

F

GEORGE F. HARDY, M. AM. SOC., M.E., M. CAN. SOC. C.E.

Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of Mill Properties, Water Power Developments.

Mutual Reserve Building, - 309 Broadway,
NEW YORK

"Asbestine Pulp" Filler

Superior to any Clay.

Reduced price on application.

INTERNATIONAL PULP CO.

New York City, U.S.A.

T. PRINGLE & SON

Specialities:—Pulp Paper and Fibre Mills,
Hydraulic Developments and Electrical
Transmissions

409, 410, 411, 412 Coristine Bldg.,
MONTREAL.

F

C. H. VOGEL

A. M. Can. Soc. C.E.

ENGINEER

OTTAWA, CAN.

WATER POWER

Paper, Pulp and Sulphite Fibre Mills

LEA & COFFIN, and H. S. FERGUSON, ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
Water Power Development and Trans-
mission. Steam Power Plants.

CORISTINE BUILDING, MONTREAL.

for instance, was proportionately inferior. He had in his possession samples of paper bearing accounts and correspondence dated 1852, which appeared to be as good in every way as the day on which they were written. Mr. Ford ventured the opinion that the paper used by the daily press all over the country at the present time would, within a few

J. A. DeCEW, B.A. Sc.

Consulting Chemical Engineer.

SUN LIFE BLDG., MONTREAL

Agent for the Sale, Purchase, or Inspection of Technical Materials.

Tests and Reports on Lubricants, Fuels, Papers, Chemicals.

Investigations and Advice on Apparatus, Processes and Resources.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

CHINA CLAY **ROSIN,**

Best Paper
Makers' Strained

Bleaching Powder. Soda Ash.
Ultramarine Blue.

STARCHES—*Highest Grade Pearl
and Potato.*

W. T. BENSON & Co., 164 St. James St., Montreal

JOSEPH PORRITT & SONS

HELMSHORE NEAR
MANCHESTER

FELTS

and JACKETS FOR PULP and PAPER MILLS

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes



Agents for the States and Canada,

F. BRÉDÉ & CO., - 240 Water Street, NEW YORK

years—ten or fifteen at the outside—be so faded and discolored that the records would not be readable; files that now were jealously guarded and treasured as invaluable references would be useless for anything but lighting fires.

Mr. Ford and Mr. McDonald, before him, once supplied the "Witness" with paper for news print and other purposes. As the "Witness" is now celebrating its sixtieth anniversary, some extracts from a letter written by the late Mr. John Dougall, the founder of this paper, under date of August 5th, 1852, in ordering paper from Mr. McDonald, will prove interesting, especially to newspaper men. The letter says:

"I received your letter and am now in receipt of Mr. Smith's letter about wrapping paper. I am very nearly out

of 'Witness' paper, and Mr. Millar, who can only supply me with a thirty-pound paper, which is too light and one inch smaller. This I must take if I can do better, but I hope to suit myself at Boston unless Mr. Smith or you could manage it for me.

"I want 100 reams 'Witness' paper not less than thirty-six pounds to a ream; forty pounds would be better the same size and shade as at present employed in 'Witness.' I also want assortment of Mr. Smith's wrapping papers, say 200 reams, direct from the mill to begin with. I suppose he could procure the 'Witness' paper for me, and include all in the same invoice, or not, you can arrange in some way, perhaps, with Mr. Hood, who is a very kind friend of the 'Witness.'

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal

Sulphate Alumina

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, ===== MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y

127 BOARD OF TRADE BLDG., MONTREAL.

AGENTS FOR THE UNITED ALKALI CO. OF ENGLAND

OFFER TO THE TRADE:

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.



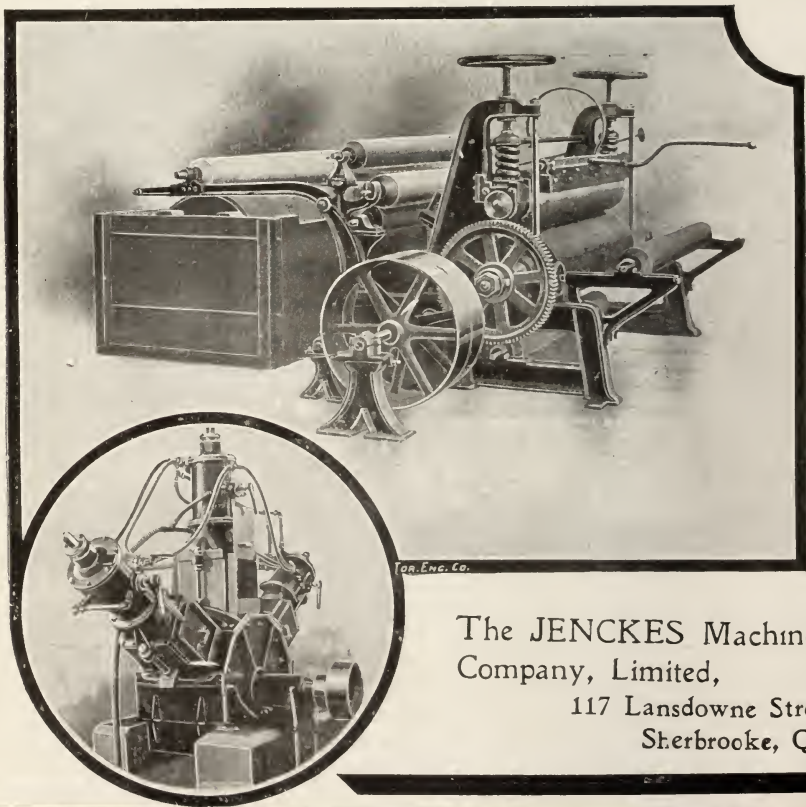
VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leather. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Haworth & Sons Co., Limited
Mill Engineers and General Furnishers.
551 St. James Street, - Montreal



The JENCKES Machine
Company, Limited,

117 Lansdowne Street,
Sherbrooke, Que.

THE PULP AND PAPER MAGAZINE OF CANADA

C. 4.—No. 3.

TORONTO, MARCH, 1906.

{ \$1 A YEAR.
SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

SUBSCRIPTIONS: Canada, Great Britain and the United States, \$1 a year; to Foreign Countries, 5s. a year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisement should be in the publisher's hands not later than the 15th of the month, and, where proofs are required, they should be sent by mail, not by express.

E. B. BIGGAR,

PUBLISHER

8 CONFEDERATION LIFE BUILDING, TORONTO,
CANADA.

CASE OF SELF PRESERVATION.

It is apparent from the quotations in this issue from a United States contemporary that there is still misapprehension on our neighbors as to the real attitude of Canadians on the pulp-wood and related questions. For individual Americans, especially those in business, the Canadian has a kindly regard and a great reserve of confidence. They are genial, willing to take trouble to please customers, and as a rule are men who pay their debts like men, and keep their word. It is from the laws and administration of their country that our troubles arise. It has been frequently said that both tariff laws and the administration of trade laws are illiberal

and restrictive as compared with Canadian laws, and numbers of instances touching the pulp and paper trades have been mentioned; while examples not heretofore unnoticed are explained in the present issue. If we did not seek to have these inequalities remedied, we would be thought by all Americans to have the plentiful lack of brains attributed to us by the writer in the "Paper Mill," and they would lose respect for us. Trade relations can never be right until the game is fairly played and conditions equal. Given this equality, the desire of Canadians will be to trade as freely as possible with the United States.

But the question of regulating, restricting, or prohibiting the export of pulp-wood is not merely a question that affects the pulp and paper manufacturers, or the timber interests of Canada. The regulation of rainfall and the conservation of forests at the sources of our rivers is vital, not only to the agricultural interests, but to manufacturing in all other lines, especially as the central provinces of Canada are more dependent on water-power than corresponding portions of the United States. It is a case of self-preservation, and not merely a question of trade advantage for Canada. It is better to be wise by others' follies than by our own, and the consequences of the wholesale destruction of forests in

many States of the American union ought to save us from a policy more suicidal in our case than in that of any country in the world. The restriction of the pulp and paper mills of each country to the timber of its own territory—except under reciprocity of conditions—will in any case be an ultimate blessing to the United States, as it will hasten the movement for reforesting its own waste lands, when it can supply its own needs.



Pulp & Paper Currency

It will be remembered that F. W. Meyers & Co. protested against the action of the United States collector of customs at Plattsburg, N.Y. in assessing an additional duty on shipments of pulp from the Lake Megantic Pulp Co., this extra duty being at the rate of 25 cents per cord of the wood used in making the pulp. This wood, however, was taken from private lands, and the Board of Appraisers has just decided that the extra duty was improperly levied, because the clause of the Tariff Act on which the collector based his ruling should apply only to pulp made from wood taken off Crown lands in Quebec. Similar protests against the rulings of collectors at Newport and Burlington, Vt., and Port Huron, Mich., were sustained, and the duties ordered to be refunded.



In the last calendar year the United States exported paper to the value of \$8,789,534 against a total of \$7,883,686 in 1904. Great Britain and her colonies took more than half of this, the amount sent to the United Kingdom in 1905 being \$2,319,480, and to Canada and Newfoundland, \$2,112,248. There was a

slight falling off from the previous year in the shipments to the Mother Country, but a noticeable increase in the exports to Canada, the total sent to us in 1905 being \$1,677,850. United States shipments to Australia and New Zealand and to British Africa also declined, the exports to India nearly doubled, those to Japan more than trebled. The total imports of foreign paper into the United States increased from \$5,342,829 in 1904 to \$6,331,571 in 1905. Of this Germany supplied \$3,780,554, being an increase of over \$600,000 above Britain's contribution to these imports, which was \$909,496, a slight increase over



A foreign consul tells how scientifically the forests of Norway are managed, to the great benefit not only of the pulp and paper trades, but of other industries having wood for their raw material. The trees are cut only when they are best fitted for the purpose which they were planted. Only experienced woodsmen or foresters are in the vanguard—men trained in good schools, such as those that have made forestry an art and a science in Germany. The woods cover fully 20 per cent. of the country, and are carefully cultivated. Only such parts of the soil as would be agriculturally unfit for farming. Two million cubic metres of wood are exported every year. Most of it goes out in the form of saw-logs, although large quantities go out for the mines and general building purposes. Supplementing the forests are the furniture, barrel stave, match and pulp factories. Three thousand tons of matches are sold every year and more than \$100,000 worth of barrels, staves, and pulp for making paper and other purposes. The wood for pulp making

through both mechanical and chemical processes. About 700,000 tons of are exported annually.



Forestry and Pulpwood

The Ontario Department of Lands and Forests has issued a booklet containing the general conditions with respect to pulp-wood areas offered for lease by tender up to April 18th. A copy may be obtained from the Deputy-Minister, Forestry White.

Hon. Mr. Turgéon, Minister of Lands and Mines for the Province of Quebec, announces that the next sale of timber pulp-wood limits will be held in June. The limits are situated in the parishes of the Upper Ottawa, St. Maurice, St. Charles, Saguenay, Lake John, Bonaventure and Rimousin. The extent is about 10,000 square miles. The sixteen million acres of arable land, the enormous timber wealth, and the untold mineral resources of Northern Ontario were the subject of an enthusiastic paper read before the Association of Ontario Land Surveyors last month by George B. Kirkpatrick, of the Crown Lands department, Toronto. He estimated that there was enough white and red pine to make six billion cords of timber, worth \$42,000,000, and enough spruce, jack pine and poplar to make 300 million cords of pulp-wood, worth \$120,000,000.

A parcel of timber limits of ninety-square miles belonging to the estate of the late Alexander Lumsden, and situated on the Ottawa River, in the Muskaming district, was sold by auction for \$200,000 to the Hawkesbury Lumber Company, and the Gordon C. Lumsden Company, on February 14th. Another parcel of the same area was put up but was withdrawn after \$188,000 had been bid. A small parcel of twenty-five square miles was also put up, but there were no bids. Among the prominent lumbermen present were:—J. R. Booth, Jim Robinson, J. B. Fraser, Gordon

C. Edwards, John Lumsden, Ottawa; Alex. Barnett, Renfrew, and Thos. Murray, Pembroke.

At the present session of the Dominion Parliament the Minister of the Interior will introduce a bill for creating forest reserves on Dominion lands to the extent of about seventeen thousand square miles. The principal areas are:—Moose Mountain, Saskatchewan, 160 square miles; Beaver Hills, Saskatchewan, 267 square miles; Rocky Mountain Park, 4,500 square miles; Turtle Mountain, Manitoba, 110 square miles; Spruce Mountain, Manitoba, 255 square miles; Riding Mountain, Manitoba, 1,685 square miles; Duck Mountain, Manitoba, 1,307 square miles; Long Lake, British Columbia, 118 square miles. An order-in-council creating a forest reserve will have all the permanency of an Act of Parliament, and cannot be amended or repealed save by order of the House.

Hon. Mr. Turgéon's bill respecting the Gaspesian Forest, Fish and Game Preserve is now before the Quebec Legislature. In introducing it the Minister explained that it was desirable and expedient that a certain part of the unsurveyed and ungranted lands of the Crown in the Peninsula of Gaspé be erected into a forest reserve with a view of the preservation of the forest, whilst permitting the cutting of timber as provided by the regulations, thus insuring the maintenance of natural irrigation as it now exists, and which is necessary to the most successful preservation of the agricultural industry, and for the production and perpetuation of fish and game in this region. The bill expressly provides that; "No timber or wood shall be felled or cut within the limits of the preserve, except under the authority of a timber license issued under the provisions of the law relating to the Minister of Lands and Forests."

The Keewatin Lumber and Manufacturing Company, of Keewatin, Ont., has sold to the Backus-Brooks Company, of Minneapolis, over 80,000,000 feet of timber in Minnesota and Canada. The Kee-

watin Company was burned out last year and for this reason disposed of its American holdings to these Minneapolis companies. This is one of the most extensive sales of standing pine in many years, and may be the last large transaction of the kind, owing to the growing scarcity of the timber supply under the inroads of the great lumber barons of the North-West. The purchasers of this 80,000,000 feet tract intend to cut all the timber in the next ten years. As to the timber yet remaining in the region contiguous to the international boundary, the greater part of it is now in the possession of strong firms, and whatever large deals are left for the future will be principally limited to transactions among these houses.



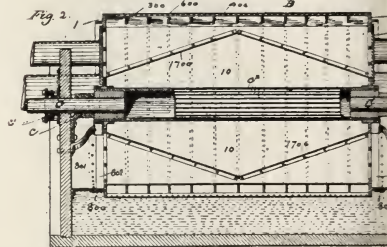
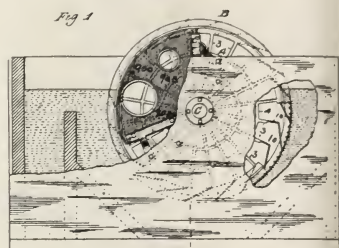
PULP-TREATING MACHINE.

Howard Parker, of Nashua, N.H., has obtained a United States patent for a mechanism by which pulp is taken in its liquid form and converted into a sheet that may be delivered directly to the felt of a paper machine.

Fig. 1 is an end view of a tank with the apparatus located therein. Fig. 2 is a longitudinal sectional view of the cylinder and appurtenant parts. Fig. 3 is a perspective view of a cylinder with parts broken away. Fig. 4 is a detail view showing the troughs secured to partitions. Fig. 5 is a central vertical section of the cylinder. Figs. 6 and 7 are detail views in perspective of the cylinder. Fig. 8 is a detail of the cylinders at their ends. Figs. 9 to 11 are detail views of the suction plate.

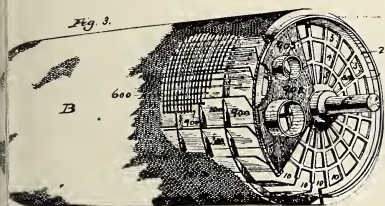
A denotes the tank, to which the pulp is supplied. In this tank is a cylinder B, mounted on a shaft C. As the cylinder revolves in the pulp it takes a coating thereof upon its surface, which coating is subsequently pressed between the cylinder and a couch roll, becoming thereby attached to a felt and travelling on its surface to a paper-making machine or other destination.

As clearly shown in Figs. 1, 4 and the heads 1 2 of the cylinder are away, leaving the radial webs 3 and stiffening bars 4 5 between the webs giving them the appearance of a square web or grid. This construction permits of access to the compartments within the cylinder from the ends of the cylinder, and provides a support for the cylinder. The cylinder is divided transversely and longitudinally by a series of radial partitions into compartments isolated one from the other. These partitions are clearly shown at 10 in Figs. 1, 3, 4, 5, 6 and 7, the partition of Figs. 3 and 4 being of old form. The



edges of these partitions are inserted into grooves c^2 in the shaft, and at each end they are secured to the webs 3 in the cylinder heads 1 2. Their preferred construction at their outer edges is shown in Figs. 6, 7 and 8, where it will be seen that their ends are bent, as at 100. To these bent ends are secured plates 200, the outer edges of these plates being turned up, as at 201. The plates 200, with the exception of the upturned edge 201, are slotted, as shown at 202, to receive the rings 300. The rings are notched, as shown at 301, and these notches are laid over the rods whose ends are secured in recesses in the heads 1 2. The upturned edge 201 of the plates 200 stiffen the

of the partitions. They are substantially flush with the rods 400, and the outer surfaces of the rods 400 at the edge of the part 202 bear grooves or notches 500 in a spiral relation to each other, and in these notches wire 600 is laid. 700 denotes a wire on, such as cylinders for like pur-



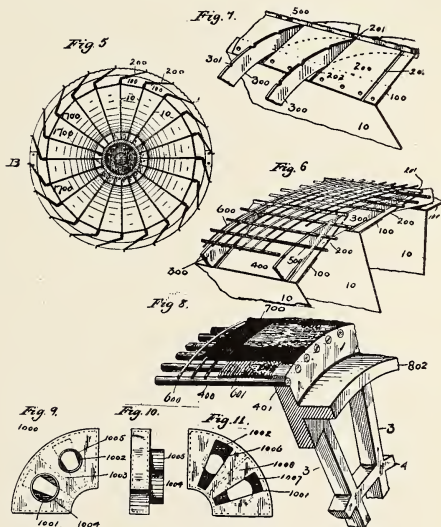
are often surfaced with, which is upon the exterior of the spirally wound wire 600, and forms the super-part of the cylinder.

Referring to Fig. 9, the object is to make the cylinder near its ends impervious so that it may act as a deckle. This is done in the following manner: The wire is wound close together, and the closely-wound portion is covered by a holder, after which the wire screen is secured in place. To the wire screen is applied a coating of waterproof paint of a width sufficient to cover the closely-wound wires 601.

Referring to Figs. 3, 5 and 6, it will be seen that the spaces between the partitions are bridged by suitably shaped ribs 1700, preferably U-shaped in cross-section, which, beginning at the ends of the cylinder near the bottom of the partitions, extend upwardly to the top thereof until they meet at about the top of the cylinder. These troughs collect the water which is sucked from the pulp through the perforated shell of the cylinder toward the ends of the tank, where it is discharged. 800 denotes a packing between the tank and the perforated cylinder head. It is fastened to a parti-annular flange 801 on the inside of the tank, and presses against an annular flange 802, projecting

from the cylinder head. Its purpose is to prevent the escape of the pulp into the chamber which receives the water escaping through the cylinder head.

To extract the water from the pulp after it is formed on the cylinder, the exterior of the cylinder or of certain compartments is subjected to a suction action of some sort. In Figs. 1, 2, 3, 4 there is shown a flat plate 900, which is held against the end of the cylinder by the springs 901. The plate, as shown, has two openings 902 903 to which pipes leading to a suction apparatus are attached; but the preferred form of the device for subjecting the interior of the cylinder to the action of the suction is illustrated in Figs. 10, 11 and 12, and is what is called a "suction cap." It comprises a casting 1000, designed to be substituted for the plate 900. This casting has two chambers 1001 and 1002, separated by the partition 1003. On the outer side of the casting are the hubs 1004 and 1005. It will be noticed that the hub 1004 is larger than the hub 1005.



In the rear face of the castings are openings 1006 and 1007, the space 1008 between the openings being large enough to cover the end of a single compartment in the cylinder. To the larger hub 1004 is secured a pipe, connected with a fan. This fan will create a suction of considerable volume, but

not of great intensity. To the hub 1005 is secured a pipe, connected with a pump, which will create a suction of great intensity. As the cylinder revolves and a compartment registers with the chamber 1001 in the rear of the cap that compartment will be subject to a suction action of considerable volume, but not great intensity. This suction extracts the moisture from the pulp to a slight degree; but more particularly it lays the pulp or felts it. As this section travels around and registers with the chamber 1002 the surface of the cylinder embraced between the partitions is subjected to a suction action of considerable intensity, which extracts pretty thoroughly the bulk of moisture in the pulp. If the suction action were of intensity immediately after the cylinder with its accumulated pulp left the solution, the tendency would be to draw the air through the pulp and make it full of holes. To obviate this the above described construction is employed.



TESTS FOR STRENGTH OF PAPER.

J. P. Korschilgen, in an article in the "Papier Zeitung," argues strongly against judging a paper by the mean tensile properties of the two directions; for durability it is only the weakest direction which counts, and the specifications should state minimum values for breaking length and stretch. Rag papers are easily made with a ratio of 66 per cent. between the weakest and the strongest directions. The best rag papers properly beaten will even show ratios of 85-90 per cent. Short fibred papers from straw, esparto and deciduous wood cellulose are easily made with a ratio of 60-65 per cent., but papers composed of coniferous wood cellulose generally show a ratio of only 40-50 per cent. between the two directions. In such cases the mean strength gives a very false idea of the real strength. The most important mechanical test for durability is the loss of tensile strength

and elasticity produced by folding paper backward and forward a given number of times, (say five double creases) under standard conditions on the Schropfer creasing machine. Paper containing a high proportion of atomized cellulose (wet beaten) generally possesses extremely high qualities, but it may be very brittle of low durability, in which case it will be immediately condemned under the folding test. By means of the folding test also, the presence of weak rag fibres, deficient beating, bad fibre overdriving and hydro-cellulose are detected. Wood celluloses and other substitutes show up badly under the test. The author suggests that lignified fibres be excluded, the specifications of the German "normal" can be made efficient measures of quality without making any reference to the fibrous composition. A kind of natural selection in these respects is made by specifying a minimum breaking length and stretch, together with a maximum loss of these values after the folding test. For instance, "normal" papers of the first class should have a minimum breaking length of 5.0 and a minimum breaking stretch of 3 per cent., and a maximum decrease in values after five double creases of 10 per cent.



PERSONAL.

Following the death of E. B. Eddy, news of the sudden and unexpected death of Mrs. W. H. Rowley, the newly elected president of the company on the 8th inst., will cause much found sorrow and regret. The death of Mrs. Rowley occurred on the day following the election of her husband to the presidency of the Eddy Company and the circumstances on this occasion are all the more sorrowful when viewed in the light of the fact that she was dying instead of gratification supreme. Mr. Rowley has the sympathy of an unusually large number of friends in this untimely bereavement.

Relation of Forests to Water Powers.

The following are extracts from the active paper on the above subject before the recent forestry convention by Cecil B. Smith, C.E., chairman of the Temiskaming and Northern Ontario Railway Commission:

I believe we are on the eve of a change. I believe that because of our enormous water power possibilities, and our relation to the coal mines, Canada should lead, not follow, and that in the near future we will have many of our railways, and particularly those in northern forests, operated by electric locomotives. And in my remarks on the relation between water powers and forests it should be always borne in mind that I have in view that one of the best uses to which water powers can be devoted in the near future will be that of electric traction on our present team railways.

The Power Problem.

Canada is well supplied with coal, both in its extreme eastern and western provinces, but over an area extending for three thousand miles from New Brunswick to the foothills of the Rockies, and from the United States boundary as far northward as we have knowledge of a definite nature, there are no coal measures of importance that have yet been discovered; while this deficiency is not an absolutely vital one, owing to the abundance of coal in the neighboring United States, yet it is of great economic importance, and has been a large factor in the development of manufacturing in this country. The use of that wood for fuel has become so costly and expensive in many localities, that it is a double drain on the pockets of the people, and a continually increasing stream of money is flowing across the southern border to purchase coal for heating and power purposes.

Quite recently this has not appeared very important, because wood, being plentiful, was largely and often used for fuel and power, and

because manufacturing was not carried on extensively, and, therefore, the power problem did not loom large in the public view. However, the last ten years have worked many changes, and we are now face to face with a condition and not a theory.

Street and suburban railways are operated by electricity; cities and towns demand electric lighting; manufactures are increasing by leaps and bounds, and more and more coal continues to pour over our frontier to meet our ever-growing demand for power.

The natural query is, "How and to what extent can this unfortunate economic condition be improved upon, and what is the proper channel through which the desired end can best be accomplished?"

The direct use of water-power for pumping and grinding is embedded in history, and doubtless such uses will continue to form an important factor in daily life for generations to come. But, excepting in special cases, these uses will be, and are, confined to water-powers of small dimensions, and the service must be given in the immediate neighborhood of the water-power.

Quite recently, however, the transmission of electricity for considerable distances was fully demonstrated to be feasible and economically important, and at once it became evident that water-powers had assumed an increased market value by reason of the facility with which the power of water could be devoted to the generation of electrical energy, which energy could then be carried without serious loss or prohibitive expense, and in greater or less quantities, to power markets and centres of population.

With the preceding statements postulated, the natural question arises, "To what extent are we blessed with water-powers over this coalless area, and how convenient are they to centres of population? Also, what has been accom-

plished to the present, and what is the future outlook?"

Canada's Position.

If we study a map of Canada we find the area before referred to consists, broadly speaking, of two drainage areas: one tributary to the Hudson Sea, and the other to the St. Lawrence Valley, the population of the country being chiefly centred in the latter area. Doubtless the Saskatchewan and Winnipeg Rivers will soon become important from a power point of view; the former because of its relation to wheat-grinding, the latter because of its nearness to Winnipeg. But looking at the St. Lawrence watershed, one is at once impressed by the great number of large rivers flowing southward from the height of land, which all have excellent water-powers, and which, flowing as they do from wildernesses full of swamps and lakes, are admirably uniform in their run-off, and likely to remain undisturbed for some time to come. The development of these powers is at present chiefly along the lines of milling and grinding, and only where situated near centres of population, such as Ottawa or Montreal, are they devoted to the generating of electricity.

Coming, however, to the rivers of that portion of Ontario south of the Ottawa River, and of Quebec south of the St. Lawrence River, a different and much less satisfactory condition prevails; and, although in earlier generations these rivers may have been quite steady in their flow, this, with two or three exceptions, is not now the case, owing to the great amount of cleared land and consequent rapid run-off of the flood waters as soon as the spring thaws have taken place.

Before coming to the main subject of this paper, which is the relation between forestry and water-powers, it may be interesting to dwell for a moment on the financial magnitude of the question under discussion. At the pre-

sent time there has been developed in Canada about 350,000 h.p. of water power, which probably, including transmission lines, represents an investment of \$25,000,000 to \$30,000,000, and, considered only on a ten-hour basis, means a saving of at least five tons of coal per horse-power year, or 1,750,000 tons of coal per year, as compared with 6,000,000 tons annually imported. In the near future will easily see this amount doubled or trebled if intelligent and comprehensive plans are adopted for development and distribution. Not only can a large amount of power be kept in our country, but industries and public utilities will be benefited by being supplied with electricity at reasonable rates.

Control of River Flow.

Speaking generally, water-power is valuable in proportion to the amount of water available at the periods of greatest demand, which usually occur in June and September, and in February and early March, and it is a matter of common observation that each river requires distinct study in itself, as the variations are not only numerous, but largely beyond the control of man.

The chief features affecting the uniformity and total amount of flow are: (a), drainage area; (b), shape of catchment; (c), whether compact, or narrow and elongated; (d), kind of country; (e), rainfall; (f), evaporation; (g), condition of soil, whether cultivated or woodland; (h), storage, natural or artificial; (i), control of run-off by storage.

It will be noted that all but the first three items are natural conditions, and therefore, beyond the control of man.

However, the large water-power developments which have been attempted to the present have been chiefly on large rivers, and the pinch-point of water has not been so serious as it will be in the future, when increased values will induce the development of smaller rivers to their full extent.

Ontario and Quebec Rivers.

The practical problems of the control of the flow in the thickly-settled parts of Ontario and Quebec Provinces group themselves naturally into three districts, which will be treated separately.

A.—Southwestern Ontario.—In this district we have the Nottawasaga, Saugeen, Maitland, Aux Sables, Thames, Credit, and Humber Rivers, all issuing originally valuable water-powers, but without any natural storage of water except in the soil, so that the whole area has been practically (86 per cent.) denuded of forests. Given over to agriculture, the water-powers have been nearly all ruined, and the creation of artificial storage would be very expensive, and the country too valuable as farm land to permit it ever reverting to forest, little is hoped for in the way of improvement, and the district will necessarily have to rely on Niagara as its source of electric power.

B.—Central Old Ontario.—We find an entirely different natural condition, and owing to this an exceptional opportunity presents itself for intelligent and comprehensive action, which may be carried out, be of great benefit to several generations.

The French, Magnetawan, Muskoka, Trent, Moira, Rideau, Mississauga, Madawaska, Bonnechère, Petawaga, and Mattawa Rivers, with their sources in lakes and swamps, all rise on a common plateau, largely unfit for cultivation, still chiefly in forest, and if it still in the hands of the Indians. They all possess excellent water-powers, many even now near to their centres, and up to the present have been developed only to a very limited extent. Much of this central plateau is still in virgin forest, but much has been cleared or burnt over, and much partly cleared on which thousands of families are living out a meagre and precarious existence on land which would be much more profitably occupied if devoted to the growth of another forest of pine and spruce indigenous to the region.

Persons who have studied re-foresting

will be agreed that to re-forest on cleared land means close planting, as otherwise the trees form their limbs near the ground and become less valuable as timber. But to re-forest a large area of cleared land in this manner would be beyond the means even of a Government, and, therefore, the idea suggests itself that the proper course to pursue would be to hold this central plateau as it is at present (and possibly even to re-forest some partly cleared or cut-over districts), to limit the cutting of timber to ripe trees only, under Crown supervision; to replant from nurseries, and guard from fires, and in connection therewith to gradually create a system of storages for water near the sources of the various rivers mentioned. Lakes already exist in abundance. All that is needed is the construction of inexpensive dams to supplement those that have already been built by the Dominion Government on the Trent Canal and elsewhere by lumbermen, and to place the control of the flow of water from these various reservoirs in the hands of proper parties, interested in making the most of the water-powers dependent on these lakes for the uniformity of their supply of water.

The question involved in this district thus presents two phases: one, the improvement of water-powers possessing wonderful natural storage, and amounting when developed to 200,000 or 300,000 horse-power, representing at least 1,500,000 tons of coal per year, and on the other hand the upbuilding of an extensive forest district naturally adapted to the growth of pine, but largely unfit for cultivation.

C.—Southern Quebec.—The Yamaska, St. Francis, and Chaudière, with other smaller rivers, have their sources in the foothills of the Notre Dame or White Mountains, and possess valuable lake storage, and while this district is largely cleared and fairly well cleared, there are considerable areas which it would pay to hold for all time as forest reserves in order to equalize the flow of the rivers above mentioned, and at the same time prepare valuable forests against the

time when timber will be in still greater demand than it is at present.

Doubtless similar problems which exist in New Brunswick demand similar treatment, but unfortunately the sources of the St. John River are international in character, which complicates the problem, and the remaining rivers of the Province are not supplied with extensive natural storage, and must depend on soil storage only.

The relationship between stream flow and forests is an intimate one, and in a country possessing valuable water-powers, such as exist in almost every Province of our Dominion, this must be continually borne in mind.

The problem is too vast to consider in any other way than as one of preserving our present forests rather than in creating new ones, and if the far-reaching effect of such preservation is thought of in connection with the preservation and improvement of our water-powers, an added incentive will be given to the natural desire to perpetuate for future generations our present valuable woodlands.



QUEBEC LAW DEALING WITH SETTLEMENT AND TIMBER LICENSES.

The following are notes on the law of the Province of Quebec dealing with timber licenses and the settlement of timber lands. This law was passed in 1904, but has not yet been put into effect.

Till 1896 a man could get a patent for land without actual settlement; but in that year an amendment was passed compelling the purchaser to do settlement duties, including the cultivation of the land. The complaint is made, however, by the limit holder that a man may take out an allocation ticket and go in and cut timber on licensed land and the limit holder may not know of it for months afterwards.

One clause provides for the classification of lands into those suitable for

cultivation and lands for forest industries. This clause is intended to stop to the indiscriminate selling of in any part of the limits, and is intended to group the settlers in districts are cultivatable, instead of giving them isolated cultivatable lots. It has this advantage over the old that, timely notice will be given to the holder of a license, advising him that lots in his license are exposed to be sold and he consequently can take them off these lots before they are sold. Under the old law practically no notice was given the license-holder when the lots were sold, and consequently numbers of lots were sold in the months of February, March and April, and being taken off the limits on the 1st of May following, the license-holder had no time in which to cut the timber. It also practically a forest reserve in perpetuity of all lands which are unsuitable for cultivation.

A strict declaration under oath must be made by any settler before a license is granted.

Paragraph No. 1275 A. relates to transfers, and obliges that the time of a transfer shall be made within thirty days after the deed has been passed. This is designed to check a great abuse which was very common under the old law of a man getting out in the names of a number of different people, and holding the land without having them registered.

Paragraph No. 1275 B. provides that no man can get more than three hundred acres of land by transfer and if he is going to No. 1269, it will be seen that he can only purchase 200 acres in his own name, making in all 500 acres he can get by direct purchase or by transfer. This will effectually put a stop to speculators getting possession of a large number of lots under fictitious names, which was the custom in the past.

Clauses from Nos. 1282 to 1285 relate to the cancellation of sales. Once a sale is put upon the locatee, by the limit holder himself has to prove that he has not met the conditions of sale, other-

cancelled ipso facto, and in case complaint being made that the conditions of settlement have not been fulfilled the Minister has no alternative but to cancel his lot. It says in the new act that "he shall cancel," in the old act reads that "he may cancel."

The procedure for the cancelling of lots is now modified, as it is now not necessary to advertise in the Official Gazette, and does not prolong the proceedings indefinitely as it was under the old law.

Under the old law, the owners of small mills were not obliged to give any returns to the Government, but by clause No. 1321 they will now be called upon to give returns, and any timber lot may have been cut contrary to law will be seized. Under the old law these small mill owners cut timber indiscriminately, not being obliged to give any returns they were able to escape detection.

By clause No. 1343 D. the holder of a fire-wood ticket is obliged to give the Minister the price of buying all timber cut on his lot. The holder of the license from the Minister to take a fire-wood lot, when a paid lot was taken, at the current price paid by said license-holder for a lot of a similar kind in the same section. This will completely shut out speculation from out-side mills for the fire-wood cut on cultivatable lands, and if a fire-wood lot is taken in conjunction with a timber lot, clause 1322 which reads: "That no timber lot shall be exacted for any timber cut on a lot off their lots." It will be the advantage that this clause will give the limit-holder over the old law. The right which the Minister formerly had of selling lots for fire-wood purposes has been cancelled as it does not appear at all in the new law. This question of fire-wood lots was a very vital one to speculators, when they could not get them under the form of settlement, but now they get them under the guise of fire-wood lots, and as the patents for same were consequently issued at once (no duties being required) there was no recourse against them.

THE E. B. EDDY COMPANY.

As announced in the last issue of the "Pulp and Paper Magazine," the late E. B. Eddy made provision for the continuance of his business, and on Wednesday, March 7th, a meeting was held for organization purposes, which resulted in the election of W. H. Rowley, president, and S. S. Cushman, vice-president. The management of the business will be directly supervised by W. H. Rowley, and George H. Millen, mechanical superintendent. The directors added Mrs. Eddy, widow of the late president, to the board of directors, of which the following are also members: W. H. Rowley, S. S. Cushman, G. H. Millen, J. J. Gormully, K.C.

The will of the late president, which has been probated, appoints W. H. Rowley, J. J. Gormully, Geo. Millen and S. S. Cushman trustees, and gives them practically carte blanche in the management and distribution of the estate.

Mr. Eddy distinctly provided that no inventory of the estate shall be made, and that the trustees shall, if possible, continue the business for ten years, at the end of which time the estate shall be wound up, and distributed as provided by the will. There is absolutely no clue in the will as to what amount of estate Mr. Eddy left. He merely says he is the owner of a considerable number of shares in the Eddy Company. There are three thousand shares in the company, but the will does not indicate how many of them Mr. Eddy owns. The will says, however, that two hundred of the shares are to be given each to Messrs. Rowley, Millen, and Gormully, and one hundred and fifty to Mr. Cushman.

Mrs. Eddy is bequeathed the house and contents up to the period of distribution.

An interesting feature of the will is that Mr. Eddy provides that his grandson, Ezra Eddy Bessey, is within two years after attaining his majority to

drop the surname Bessey and call himself Ezra Butler Eddy.

The will was witnessed by Messrs. D. Tilley, J. E. F. Kelly and F. T. Taylor, and was drawn up in 1903. The estate, besides real property, consists of \$300,000 in shares of the E. B. Eddy Company, Limited. The shares are 3,000 in number, and nominally valued at \$100 each. The four directors of the company are named as trustees and executors, Messrs. J. J. Gormully, W. H. Rowley, G. H. Millen and S. S. Cushman, and in addition Mrs. Eddy, the widow, if she shall renounce her rights to community of property and rights of dower under the laws of the Province of

Quebec, self as hoping greatly that it would be continued. It was the "dear desire" of his heart that this should be the case, and for this purpose he nominated his executors to carry out his will, the directors named. To them he bequeathed 750 of the shares in the company, 200 each to Messrs. Millen, Rowley and Gormully, and 150 to Mr. Cushman.

The executors are to act for five years, when distribution shall be made of the estate. In the meantime Eddy has agreed to renounce all claims of community of property and dower:

(1) She shall receive an annuity



Eddy Company's Offices.

Quebec. In this case she is first bequeathed her house and real estate, together with all furniture.

The charitable bequests amount to \$7,500. These beneficiaries are the County of Carleton Protestant General hospital, \$5,000; Protestant Orphans' Home, \$1,000; Protestant Home for the Aged, \$1,000; and Miss Annie Lewis' Home for Convalescent Children, \$500.

In addition to this \$1,000 is left to the town of Bristol, Vt., to hold in trust, the interest to be devoted to "maintaining decently" Mr. Eddy's burial place.

As the founder of the E. B. Eddy Company the deceased expressed him-

self as hoping greatly that it would be continued. It was the "dear desire" of his heart that this should be the case, and for this purpose he nominated his executors to carry out his will, the directors named. To them he bequeathed 750 of the shares in the company, 200 each to Messrs. Millen, Rowley and Gormully, and 150 to Mr. Cushman.

The executors are to act for five years, when distribution shall be made of the estate. In the meantime Eddy has agreed to renounce all claims of community of property and dower:

(2) Ezra Butler Eddy Bessey, son, shall receive \$1,000 per annum.

(3) The dividends on 500 of the ordinary trust shares shall be divided amongst the four executors named.

(4) The balance shall be accumulated until the period of distribution.

When the estate is wound up, one-eighths of it is to go to the widow, one-eighth to the grandson and one-eighth to the trustees.

If any of the parties mentioned in the will should die before the estate is divided, their portion shall be distributed as they in their wills provided.

trustees are given the fullest discretionary powers to borrow money and to conduct the business.

Mr. J. J. Gormully is named solicitor to the company.

Mr. Eddy provides that at no time shall there be less than three trustees, and a majority of them shall rule in the case.

A codicil dated December 1st, 1903, to the will was made April 6th, 1903) Mr. Eddy reiterated more forcibly the full character of control of the business, and the affairs of the estate generally, and that he wishes the trustees to have.

It is pleasing to note in connection with the business that Mr. Rowley, who has rendered long and untiring service to the company, has been substantially recognized, and under his capable management the business has a bright outlook. Speaking of the late president, Mr. Rowley says:

For more than fifty years past Mr. Rowley has been a conspicuous figure in the business life of Canada. During

those years he gave himself ungrudgingly to the extensive employment of labor in the furtherance of the manufacturing interests of this country. Now that his work here is done, and he has gone to his rest, although his loss is irreparable to his co-directors, it is not for them to complain, but to do their best to continue on the same lines the business he founded and has brought to its present large proportions.

"It is because of the high regard for and of our confidence in the support received from the trade that we continue the work that is before us, for we have already had many expressions of that great kindness and good feeling which remove many of the difficulties we should have otherwise to look forward to and to face.

"Although we have lost the presence, the magnetism, the counsel and advice of our dear old chief, we hope to and shall try hard to continue to keep secure the good-will and hearty support of all those who have in the past favored us with their support and assistance."



A Case For Prohibition.

The following is a copy of the memorandum laid before the Tariff Committee at its recent sitting at Three Rivers with the Laurentide Paper Company, giving some of the reasons why the exportation of pulp-wood from Canada should be prohibited:—

1.

Returns to Canada from one cord of pulp-wood cut from private lands and shipped to the United States:

Price per cord delivered to the railroad	\$ 3 50
Freight on cars	30
Freight to average United States boundary line, (5c. per 100 lbs.)	2 15
	<hr/>
	\$ 5 95

2.

Returns to Canada from one cord pulp-wood cut from Government lands and shipped to United States:

Stumpage paid Government	.....\$ 65
Contract for making and placing on river bank	..... 2 10
Driving, sorting, boom and slide dues, etc.	..... 1 00
Cutting, preparing and loading for shipment	..... 60
Freight to average United States boundary line	..... 2 15
Interest on wood preparing plant, (\$75,000, 6 per cent., capacity 24,000 cords, 6 mos.)	..... 20
	<hr/>
	\$ 6 70

3.

Revenue to Canada if converted into paper here at home, figured on a basis of 1 ton paper consuming $1\frac{1}{4}$ cords wood:

Average capitalization of largest paper companies in United States and Canada, \$25,000 per ton development:

Interest per ton on property ..	\$ 4 84
Average cost to manufacture ton news	28 00
Average freights	4 54

Revenue from ton of paper ..\$37 38

Revenue from cord of wood .. 29 88

Figures in No. 1 and 2 are most conservative, because I believe the largest part of the wood cut from Canadian Crown Lands is shipped to the States by water, mostly in American canal boats, which would reduce the above returns from \$5.95 to \$3.80 per cord, and from \$6.70 to \$4.55 per cord.

I understand that although the wood is given to the United States manufacturers, Canadian boats are not allowed to carry it into the New York State canals, for instance: wood destined to Troy, N.Y., if shipped in Canadian boats, would have to be transhipped at Whitehall. This of course is not practicable, therefore this part of the freight is restricted to United States boats.

Canadian Manufacturers' Handicap.

Under the present conditions, we have little or no advantage with our United States competitors in the item of wood, for the reason that the United States manufacturers get very low freight rates on wood, and after converting it into paper, owing to the location of their plants, are in much better position than the Canadian manufacturers to reach the export market.

The average price of coal to mills situated in Eastern United States, is about \$3 per ton,—the price of coal in the average Canadian paper mill is \$4.50.

Our company paid the Canadian Government in duties last year \$43,000 on a

value of approximately \$175,000 of ports. In addition to this, we had import materials, such as alum, and color, rough jute, fire brick, rough lumber, etc., on which there is no duty the amount of \$50,000.

There are other items of disadvantage to the Canadian paper manufacturer such as scarcity of skilled labor, loss of production on account of delays caused by extreme weather conditions, delay in shipping during heavy storms in winter, situation of mills, long distances from source of supplies, and also distances from market, making it necessary to carry very large supplies of manufacturing materials, as well as finished products. All of these items tend to increase the cost of manufacture, the exact amount of which would be very hard to estimate.

Having had several years' experience in some of the larger mills in the United States, the writer can state positively that it costs the Canadian manufacturer of paper more per ton f.o.b. canal mill, than it does his United States competitor.

There seems to be two reasons for this:

First—The Canadian Government levies a very heavy import duty on paper machinery and supplies.

Second.—The same Government taxes their wood—which is one of their assets—to the Americans, free of duty to convert into paper to compete with the Canadian manufacturer in the export market.

Paper Market Conditions.

The consumption of roll news in Canada is approximately 27,200 tons per year. The Laurentide Paper Company's yearly production of news is 44,500 net tons, so while the industry is in its infancy, the home market is much over-produced, therefore a large part of the Canadian tonnage has to be sold in the export market. However, in the United States, there is a duty of 15 per cent. (3-10 of a pound in value up to 2c., and 50c.

ing duty) against us, which is practically prohibitory. Prices in the United States market, barring present temporary conditions, are much higher than either the Canadian or export market. The reasons for this are that the American manufacturers protect prices in their home market, and dump their overproduction in England and Australia.

Effects of Prohibiting Exportation.

The pulp-wood politicians of the Province of Quebec have made numerous statements, and have had them corroborated by the managers of some large pulp companies in the United States, to the effect that the supply of pulp-wood in the United States is practically inexhaustible; that the only effect of prohibiting the exportation of wood would be to deprive the poor farmers of the revenue they are getting from selling their pulp-wood to these political lumberwood brokers for shipment to the United States; that in case the shipping of pulp-wood was prohibited, the United States mills would draw from their own supply, etc. I have no figures at hand to prove these statements. I think figures unnecessary for the following reasons—

First—With possibly two exceptions, I think all of the large pulp and paper companies in the eastern part of the United States are looking to Canada for their supply, or all of their wood supply.

Second.—Pulp-wood limits in the States have become so scarce and expensive that it is no longer considered foolhardy for a company to be forced to build what is known in the United States as a "speculative mill,"—that is, a mill without any timber limits and it, or a mill with cheap Canadian

It seems to us that it is reasonable to suppose that the effects of prohibiting the exportation of wood would be

For the first year or two, the United States mills that are protected by lim-

its, wholly or in part, would draw on their own supply; the speculative mills would have to pay such high prices for their wood that the prices of paper in the United States would go up until the press would insist on a remedy. The most feasible one would be free Canadian paper. The high price of wood in the States would certainly curtail the production, so that the Canadian mills would be in much better position to sell profitably in the export market.

As it is impossible to curtail production below the natural demand for any length of time, it would only be a very short time before the Americans would have to come to Canada with their mills. New Canadian companies would be formed; the demand for Canadian pulp-wood would be as great as it is today; and Canada would be getting a revenue from each cord converted into paper, of \$29.88, in place of \$6.30 that they are now getting.

GEO. CHAHOON.



"DERB" SHOUTS ACROSS THE FENCE.

The free lance writer in the "Paper Mill," of New York, signing himself "Derb," has an article on the proposed export duty or prohibition of the export of pulp-wood from Canada which he entitles "A Canadian Bluff." "Derb" talks rather excitedly, and attributes the agitation in Canada chiefly to two Americans who have come over to Canada to establish pulp and paper mills.

Of course, the Canadian pulp and paper manufacturers do not confirm the testimony freely volunteered in their behalf by "Derb," but discounting his assumptions there are some observations in the following extracts from his article which contain germs of wholesome truth. There is little doubt at all events that most of the few mills which have failed in the past in Canada have done so because the promoters had not the cour-

age to go on and remedy their own mistakes.

They (the Canadian pulp and paper manufacturers) admit that their wood only costs them \$2.50 a cord, and they also admit that it is costing the manufacturers of paper and pulp in the States \$11 to \$13 a cord for their wood laid down at their mill. They also admit that they have the hardest time when they visit the mills in America to make contracts with them for sulphite and ground wood pulp. They also admit that to sell their pulp they must cut the price way below the American manufacturers' price, and they admit that we are importing 50 to 70 per cent. of Canadian wood to make our paper and pulp, all of which is an admission on their part that they have the wood, but that the American paper and pulp manufacturers have the brains.

"With all of Canada's great resources for the manufacture of paper and pulp by virtue of great forests, what has she done in the manufacture of paper and pulp? I think it is safe to say that for every paper and pulp mill that has been built in the past fifteen years in the Dominion of Canada, there has been one closed up or abandoned. Why? Because, in the first place they did not know how to build their mill. In the second place, after it was built, they did not know how to run it successfully, and in the third place they never had the grit to back a losing game until they made it a paying proposition, and that is the reason so many mills have failed and abandoned the proposition. It was not because the wood gave out nor the money, but they refused to put any more into a losing game. Now, then, how long would it take the Canadian manufacturers of paper and pulp to furnish the States with all grades of paper if, as they say, the Canadian Government prohibits the American manufacturers from getting any more wood from Canada, and on account of this we would have to shut our mills down? How long would it take the Canadian manufacturers of paper and pulp and

the capitalists of Canada to build mills enough to supply us with paper?

"There is another class of men in the States who are urging Canada to enforce an export duty on pulp-wood, and they are the large timber land owners in the United States. Of course, they have an object in doing this other than a patriotic spirit. They say patriotism with some people only extends as far as the end of their pocket. These large timber land owners appreciate the fact that they have a fortune standing right in their forests, and they know and appreciate the fact that if this duty is put on pulp-wood coming in from Canada or a prohibition proposition is enacted their forests will be gold mines to them and they can demand any price for pulp logs. They are the ones who are urging the Canadian Government to enforce this duty simply to feather their own nests, but I think that the representatives of the Government of the Dominion of Canada will think very seriously, and it will be a long time before such conditions will go into effect. I think that the representatives of the Canadian Government are very much wiser about the paper and pulp industry of America and our pulp-wood resources than the Canadian paper manufacturers and the representatives of the Canadian Government also know that they are receiving more money from the American manufacturers for their pulp-wood than they are receiving from the Canadians, and if they should enforce the duty, the Canadian manufacturers would get their pulp-wood very much less, that is what they are after. Of course some of the manufacturers up there will tell you we do not want the Canadian Government to put the duty on pulp-wood against the manufacturers of the States, for the reason that the Canadian manufacturers are afraid of a competition that would offset all the good results obtained by enforcing the duty, but they wink the other eye when they say this. Now, I think it is up to the president and secretary of the American Paper and Pulp Association to have

discussion on this matter at the next meeting and banquet of the association, if it is such a serious matter as some of the manufacturers of the States think it is, it is up to the officers of the American Paper and Pulp Association to discuss these matters and to look at the past, present and future regarding the situation that is now so much talked of between Canada and the United States."

This was written before the convention of the American Paper and Pulp Association, but it is significant that, when the president referred to the Canadian pulp and pulp-wood question in his address, and afterwards called for discussion, not a word was said by any member. The responsible members of the association evidently think it wise to keep off the ice when it is thin.



NEW BRUNSWICK'S FORESTRY AND PULP-WOOD POLICY.

Fleming Tweedie, in his statement in the New Brunswick Legislature last month, outlined the forestry and pulp-wood policy of that Province.

He said: The first proposition is to have a thorough survey made of all the Crown timber lands in the Province. This is not a new idea, for when I was Surveyor-General I started to establish fire guard lines, and such lines were made in the northern counties. We found that the owners of land had then no difficulty with regard to their boundaries. I now propose to have a survey made over the province which, besides running the lines, will ascertain the relative value of the lands on the different parts of the province with their growth and recuperative powers. Some lands are much more valuable than others for the production of wood. I may instance the lands along the shores of the Bay of Fundy, which, owing to the fog, are less liable to fires than lands further inland. The object of the survey is to enable us to put a proper price upon lands according to their

relative value. After the survey is made we will also require a report on the lands on the heads and sources of the different streams which in the opinion of the Government should be reserved for the purposes of preventing the streams from going dry.

We also propose to stop the cutting of hemlock trees for bark unless when the operator takes out the entire tree. Trees left in the woods this way are a menace to our forest wealth. We will also make regulations for the better taking out of the whole tree, requiring the tops to be taken out and the distribution of the branches and debris. Under the present arrangement a great deal of the tree is left in the woods and we desire this shall be removed to prevent fires.

The Pulp-wood Question.

This leads me to a consideration of the pulp-wood industry. Many persons in this province are against the exportation of pulp-wood on the ground that it will destroy our forests, but I think that there is no good reason to anticipate such a result. It is the policy of the Government that no lumber shall be cut on Crown timber lands under the regulation size. It has been said that this Government should deal with the question of exporting pulp-wood. When the tariff commission was sitting in the province it was suggested that a duty should be placed on the exportation of pulp-wood. To this Mr. Fielding replied in his airy way that this was a matter for the province to deal with. That, however, is not a correct statement, for we could not deal with the exportation of wood cut on granted lands. We could only affect the cutting of pulp-wood on Crown lands. It seems to me, however, that there is plenty of room for the pulp industry in this province if it is properly handled.

Duration of Leases.

In 1893 we gave the operators 25 year leases of timber lands, and these leases have yet twelve years to run. But for the last two or three years the opera-

tors have been insisting on perpetual leases such as exist in Quebec. Yet when they bought this land it was for 25 years, which then seemed a long time, and would it be fair that having held these lands for 13 years they should say they must have them forever without paying any additional price or allowing others to bid for them? That is one way of looking at the matter. There is another way of looking at it. Would it be fair that parties who have for years been carrying on the lumbering industry and giving employment to large numbers of people should be at the mercy of every speculator? The view of the Government is to give the lessees of land some protection. But where a man has a mill and an established business he should have reserved for his use enough land to stock his mill on surrendering the rest, and also that he should agree to carry on the industry as before. Some of these lands cost the operator only the upset price, which was \$8 a square mile. Some lumbermen who paid these low prices now demand for their holdings \$500 to \$1,000 a mile. Would it be reasonable to give these Government lands in perpetuity without the operators paying one cent more? To do so would be giving away the public rights. It is not the intention of the Government to give the operators these lands without compensation. Legislation will be introduced on this subject. We will also from the survey mark out the pulp lines where wood is never likely to grow to a large size. We also propose to deal with rotary mills. They are a great menace to our forests from their liability to cause fires. We also propose that the scalers of lumber shall be changed around and that no scaler shall hold his district for more than two years.

It is also proposed to hold a forestry convention about the beginning of August next in Fredericton, if it can be arranged, where all who are interested in lumber may attend. It is the intention of the Government to protect our

forest lands, and I have no doubt that with proper care they will last for 25 years. Our lumber policy is the most important matter with which this province has to deal. Large numbers of persons are now coming into our province to invest in lands. The Bay Shore Lumber Company has spent about a million dollars in purchasing lands. They are going on lumbering on their own lands very carefully, taking out everything the whole of the regulation size timber. It would amaze some people in the United States if they saw the waste of some of our mills. Another large company is that which purchased the W. Richards property, 160,000 acres of freehold, and leases to about the same amount for some \$700,000. They are now cutting on their freehold, and they intend to build a mill on what is called the Morrison place, to take off the bark and they will send the logs to New York to make into pulp. It is to be regretted that our water powers in New Brunswick suitable for pulp mills are few. That at Grand Falls, the Nesquehoning, and perhaps the Upsalquitch are the most important. The Grand Falls Company, I may say, have filed their plans with the Government, and they soon be making progress with their works.



CANADIAN FORESTRY ASSOCIATION.

The convention of the Canadian Forestry Association at Ottawa last January, reported in the last two issues, was a special gathering, the regular annual meeting being held on the 11th inst. in the same city. The report of the Board of Directors showed that membership had increased from 56 reported last year, to 1,162. R. Campbell, having resigned the editorship of the "Forestry Journal," the association's official organ, the appointment of a successor was left to the Executive Committee. A plan is to

If one drop slowly a solution of Na_2CO_3 into any alum solution, a pre-

precipitate will form where the drop struck, but it dissolves again on stirring. This continues until one half the sulphuric acid of the alum solution is joined to the alkali. Then the solution contains salt 2. Na_2SO_4 and the carbon dioxide escapes. Going beyond this quantity by successive additions of soda, there results an insoluble precipitate of $\text{Al}_2\text{O}_3 \cdot \text{SO}_3$. This precipitate can be obtained by diluting or warming the solution of the $\text{Al}_2\text{O}_3 \cdot 3\text{SO}_3$, when $\text{Al}_2\text{O}_3 \cdot \text{SO}_3$, and the neutral salt Al_2O_3 would result.

When size and alum react together in the beater, the conditions are similar, only the rosin acids take the place of the carbon dioxide.

There are two possibilities. The one is that at first, as long as the alkali of the rosin soap takes only one-half the sulphuric acid of the alum, $\text{Al}_2\text{O}_3 \cdot 2\text{SO}_3$ results and the previously combined rosin is precipitated in the free state. The other is that resinate of alumina is formed by the interchange. A smooth working in this way would result in the whole of the rosin if the rosin soap being combined as resinate of alumina while the soda forms sodium sulphate.

However, these conditions do not apply in paper making. How much aluminium resinate results, or indeed whether any at all results depends in my opinion on the changing conditions of the pulp, the relation of alum to alkali, but also on the concentration and method of using the alum solution in this way, that the more concentrated the solution, the less aluminium resinate can be formed.

If only so much alum were added that two-thirds of its sulphuric acid would combine with the alkali in the pulp, we would have the conditions for the formation of the insoluble $\text{Al}_3\text{O}_2\text{SO}_3$ and in this case, the conditions for the formation of aluminium resinate no longer exist. The weak rosin acids may be able to withdraw part of the base from the less stable $\text{Al}_2\text{O}_3 \cdot 2\text{SO}_3$, but cannot affect the insoluble $\text{Al}_2\text{O}_3 \cdot \text{SO}_3$ which is precipitating. The formation of aluminium resinate will as a rule,

under most conditions, precede the formation of the $\text{Al}_2\text{O}_3 \cdot \text{SO}_3$.

This basic aluminium sulphate reacts with inks, and therefore, paper which has much of it possesses very little power to resist the inks.

The excess of alum, therefore, must be so high that as little as possible of salt will be formed. It is impossible that there occur no "local deficiency" of the pulp else this compound would be formed, since it is stable, even in an alum solution, and therefore it will be changed if subsequently there be a large excess of alum.

A good working rule is to have the solution as concentrated as possible to have it distributed evenly.

But besides one should not have an excess so great that only the so-called $\text{Al}_2\text{O}_3 \cdot 2\text{SO}_3$ can be formed, as this which remained in the paper would break up on the drying cylinders forming the injurious $\text{Al}_2\text{O}_3 \cdot 3\text{SO}_3$. However, one must, if he would work intelligently, add more than double the quantity of alum, the sulphuric acid of which is equivalent to the alkali of the rosin soap.

If one takes three times the quantity of alum and assuming that no aluminium resinate be formed, the alkali of the rosin soap would combine leaving two-thirds of the Al_2O_3 combined as the neutral salt, and the solution would contain a mixture of the neutral and basic aluminium sulphates.

The higher one goes with the quantity of alum, the less will be the possibility of the formation of aluminium resinate and the separation of the basic sulphate $\text{Al}_2\text{O}_3 \cdot \text{SO}_3$.

Hence the importance of the alum excess lies doubtless in the restriction of the formation of these last products, i.e., aluminium resinate and basic aluminium sulphates. It is necessary to be as sensible as possible of the formation of those bodies which react with the acting inks.

If only alkali of the rosin soap is taken into the consideration a three times

would be sufficient; but there are
 es dissolved in, the working water,
 sometimes in the pulp which require
 to neutralize them. By lessening
 hurtful by-products, the alum con-
 sumption is lessened and if possible,
 all free rosin precipitated.

On the above Mr. De Cew com-
 es as follows:

Every paper-maker knows from ex-
 perience that it is necessary to use a
 large excess of alum over and above any
 theoretical calculation as to the amount
 required for the actual precipitation of
 the size. Sometimes a larger excess is
 required than others, the reason of
 which is hard to explain, and as a re-
 sult the maximum proportions are ap-
 plied in order to be upon the safe side.
 This results in an enormous waste of
 alum, as all the excess in solution is lost
 in the backwater and amounts to three
 or four times that which is actually pre-
 cipitated by the size. The function of
 this excess is the production of a certain
 impurity in the stock which experience
 has shown to give the best results.
 Therefore, if we can determine what this
 impurity is, we may be able to effect
 the same result without such an exces-
 sive loss.

The article by Dr. Klemm is one
 of the best that throws considerable light upon
 the subject, by showing us that a vari-
 ous chemical conditions may trans-
 cend depending upon the kind of size
 and the proportions of the precipitants,
 and the conditions under which the reac-
 tion takes place.

The undesirable reactions which may
 take place are, the formation of the
 basic aluminum sulphate and the resi-
 due of alumina, and the production of
 which is at a minimum when the alum
 present is a certain multiple of the soda
 and the size.

If the total alum is a multiple of the
 soda we must reduce the soda content
 to the lowest margin, in order to pro-
 duce the same conditions with a mini-
 mum of alum. Therefore, we should
 use a size containing a small amount of

soda and a large amount of free rosin.
 Then the results of size reaction will be
 free rosin, neutral sulphate, and small
 quantities of aluminum resinate and
 basic sulphates. This reaction is more
 of a certainty and not so dependent up-
 on other conditions, as when using a
 nearly neutral size.

For instance, a hard water will not
 interfere with the sizing process when
 using a free rosin size, because there is
 less combined rosin to react with the
 salts in the water, and the proportion of
 calcium or magnesium resinates will be
 smaller.

There are then two methods of ob-
 taining a free rosin sizing:

One is to use a nearly neutral size and
 a large excess of alum and under certain
 conditions a large percentage of free
 rosin will be precipitated into the pulp.

The other is to use a size containing
 already much free rosin, requiring much
 less alum to produce the same result,
 and in which there is much less chance
 for the formation of compounds injuri-
 ous to the sizing.



MAKING PAPER FROM PEAT.

With the rapid consumption of the
 forests capable of supplying pulp-wood,
 and the fear that reforestation will
 fail to meet the demands of the market,
 European paper manufacturers are giv-
 ing their attention to other means of
 securing pulp. In a treatise on "Peat
 and Its Products," W. A. Kerr, V.C., of
 Glasgow, favors its use in the manufac-
 ture of paper. Mr. Kerr refers to
 the success of the Celbridge Irish peat
 paper recently referred to in this maga-
 zine; and which contains 75 per cent.
 peat. He points out that of all the
 substitutes for linen rags and pulp-
 wood peat appears to be the cheapest
 and readiest at hand, for the stronger
 and coarser paper in particular.

For very strong packing paper, such
 as is used by ironmongers, an expert
 suggests the addition of hop fibre,

which is of great strength and easily prepared. Brown packing papers made entirely of peat or blended with some other fibrous materials, such as old gunny bags, were very tough, and the boards were in every way superior to those tender and easily torn German straw boards. As peat charcoal is an excellent bleach for vegetable dyes, it is quite possible to manufacture a snow-white paper from the gray surface peat mixed with bog cotton. This paper is especially adapted for the requirements of furriers, for not until this kind was made were they able to find a paper which would keep moths out of their goods. Treated with Veloril, the new substitute for India-rubber and gutta-percha, it can, it is claimed, be rendered water and grease proof. It can also be used as a roofing material and a lining for walls and packing cases, and the pulp can be molded, it seems, into any shape.

Peat also contains a vegetable substance, the action of which, though identical with that of starch, does not contract and cause that brittleness which the latter is apt to produce. Numerous kinds of vegetables also produce this binding substance, but none, so far, have been found capable of yielding it regularly and at all seasons at such a low cost and in practically inexhaustible quantities. This vegetable matter chemically combines with the fibrous and mineral matters contained in the pulp without in any way injuring their properties, grasping and interlocking the irregularities of the fibres, contracting them in the process of drying into a horny condition, and thus glueing them together, the result being a strong cohesive paper.



WORKING AGAINST THE CANADIAN TRADE.

A variety of facts have been cited in this journal to show that conditions for years past have been changed to the hindrance of the Canadian manufacturer on his own ground, in such ways as to

twist to our disadvantage the very sources which nature and our geographical position give us. And yet of these disadvantages are capable readjustment, if the Government railways and the various branches the trade work together for the common good.

A representative of the "Pulp Paper Magazine" recently had an interview with John R. Booth, of Ottawa, on the situation of the pulp trade in matter of transportation charges.

Mr. Booth is not only one of the largest lumber operators in Canada, but now a large pulp manufacturer, a projector and head of the Canadian Atlantic Railway till its sale to the U.S. Trunk, he understands the practical bearing of freight questions on pulp and lumber trades.

Mr. Booth has kindly prepared the following statement showing the advantage accruing to the American manufacturer under present conditions on shipments of pulp-wood, as compared with the shipment of wood-pulp by the Canadian manufacturer from Ottawa to Watertown, N. Y.

The rate on pulp-wood is 7 1/2¢ per 100 lbs., on wood pulp 11 1/2¢ per 100 lbs. The minimum carload of pulp-wood is 30,000 lbs., and the rate offered for the commodity will accommodate 8 cords and upwards.

The minimum carload of wood-pulp is 40,000 lbs., and cars employed in the wood pulp business can be loaded to their carrying capacity, thereby insuring the railroads profitable employment of their cars when so engaged.

A cord of perfectly sound peeled dry spruce wood, weighs, according to the Canadian Freight Classification, 4,000 lbs.

"My own experiments," says Mr. Booth, "have shown me that 11 1/2¢ of rough wood (i.e., all sound bark on) will produce one cord of peeled or peeled wood, and the cost of peeled wood when ground, will be 2,350 pounds of dry pulp. Upon

of an air dry test of 44 %, 2,350
of dry pulp will be obtained from
2 lbs. of wet pulp."

Eight on cord pulp-wood, of say 10
er, Ottawa to Watertown, on basis
of 600 lbs. to the cord, is 40,000 lbs.
1-2c. = \$30, or \$3 per cord.

Eight on 5,340 lbs. wet lbs. of pulp,
d product of a cord of wood,
from Ottawa to Watertown, at
1-4 cents per 100 lbs. is\$6 01
Eight on 2,350 dry lbs. at 1-12c. per
lb 1 95

\$7 96

Eight on per ton against the Can-
adian\$4 96

A load of pulp-wood is not worth
an invoice and not a consular cer-
tificate is therefore only necessary. The
cost of a certificate is \$2.50, and there-
fore would increase the cost per ton to
Canadian by approximately 20 cents.
Manufacturers of pulp at other points in
the province and in Quebec will con-
sider this, and if the conditions disclosed
in this example are borne out, then a
strong case for prohibition can be
made since the difference, \$4.96, is too
great to hope to equalize it by the im-
position of an export duty.

The following is a statement showing
relative freight payable on ship-
ment of pulp-wood and wood-pulp from
Ottawa to Watertown, N. Y., on the
basis of rates now effective, viz., 7 1-2c.
and 1-4c. per 100 lbs., respectively:

Eight on cords of pulp-wood at 4,000
lbs. = 40,000 lbs. at 7 1-2c. per
100\$30 00

Eight on wet lbs., of wood-pulp, at
1-4c. per 100 (the product of
10 cords of wood) 60 08

Eight on net loss of revenue to rail-
road 30 08

The above is chiefly to show that the
cost of handling 10 cords of pulp-wood
is just its product, 53,410 lbs. of wet
pulp would apparently lose \$30.08. Many
rates are offered by railroad mag-

nates, especially those of the C. P. R.,
which handles large quantities of pulp-
wood, but little wood pulp, but the fact
just made is merely a coincidence, as
most of the pulp mills happen to be
contiguous to the Grand Trunk Rail-
way or its allied lines, and probably the
officials of the latter company would be
more amenable to the trade than those
of the C. P. R.. Arguments against
the levying of higher rates are some-
thing like this: That old flats, coal cars
and derelict box cars can be used in the
pulp-wood trade, and not in the wood
pulp, that the rates are already as high
as the wood can stand, that further in-
crease would drive the trade to the wa-
ter, where it could be reached.

From the standpoint of a native in-
dustry, such arguments would have no
weight; but even taking the pulp indus-
try as a problem of water transportation
it will be seen from the memorandum
of the Laurentide Paper Company that
the pulp-wood shipping business is so
worked that Canadian barges are not
permitted to compete for this trade in
Canadian waters since they are not per-
mitted free access into United States
canals. From beginning to end there
is discrimination against Canadian in-
terests.



WASTE FROM PULP AND PAPER MILLS.

Extracts from a paper read before the
International Congress of Applied
Chemistry, by Martin L. Griffin, Mech-
anicsville, N. Y.:

In the process of grinding wood for
cheap grades of paper the residual water
contains only trifling and unimportant
residues, soluble in cold water. In boil-
ing with water only, in closed digesters
at elevated temperatures and pressures,
a process frequently employed for
special purposes, a marked hydrolysis of
the incrusting substances takes place
and the formation of an appreciable
amount of acetic acid. By the drastic

treatment of wood with strong sodium hydrate, hydrate and sulphide, and soluble bi-sulphites at high temperatures and pressures, we reach the limit of chemical action to produce refined paper stock from this source. The hydrolytic action under these conditions is so great that not only are all the foreign substances associated with the cellulose removed, but even the cellulose itself is attacked to a varying degree and the waste liquors, or waters, are highly charged with the residual complex products.

Besides wood, esparto, cotton seed, hull fibre and flax straw are about the only raw materials requiring the use of sodium hydrate. Other raw paper stock, as straw, jute, manila and rags of all descriptions are cleansed almost exclusively with lime water. Hence we see that with the exception of the sulphite process adapted for wood only, alkaline treatment of varying intensity is the common practice in cleansing paper stock. For this class of waste waters, we shall see that one general scheme of purification is applicable, the sulphite process excepted. Next in importance, particularly from the standpoint of the manufacturer, is the enormous quantity of stock, mineral filling, sizing, alum and coloring matter, lost in the wash waters and the waters flowing from the paper machine. These all go into the stream which usually furnishes the water power. I believe the profit resulting from the saving of the lost stock alone would be more than sufficient for the successful treatment of all polluting waste from the mills.

The third class of wastes will include the residues and by-products from chemical operations, the lime refuse from the solution of bleaching powder and the causticizing of the reclaimed soda ash, often a considerable insoluble mono-sulphite of calcium, which settles in the tanks in acid making, and black ash carbon waste.

Up to about the present time paper manufacturers have given little heed to these waste waters with possibly two

exceptions. The industry has been very important and profitable one from the start, and has been largely conducted by men who have not had any considerable scientific systematic training. Accordingly, instead of devoting time and money to the possible saving of materials going to waste and polluting streams, and thereby causing economic loss, they have preferred to increase production to make money. There have been at various times "savealls" conducted for the purpose of recovering materials in the waste waters from the end of the machines. These have usually consisted of a fine wire revolving screen, or cylinder with couch roll and doctor, but the results secured have seldom met expectation.

The most notable attempt to secure a useful product from pulp and paper wastes was made by the Scottish Paper Makers' Association in 1900, when they offered prizes amounting to £1000 for the best methods of obtaining useful products from paper mill wastes. Prizes were awarded for a process of analysis of spent esparto liquor and for the treatment of waste precipitated calcium carbonate.

By far the largest efforts have been made to treat the waste sulphite liquors with the purpose of obtaining useful products. Almost coincident with the invention of the process, patents for a view to this were taken out. It is now taken for granted that the waste water contained valuable constituents. In fact, it was valuable as an adhesive and sizing agent by concentrating it.

Benjamin C. Tilghman, the inventor of the sulphite process in 1844, years later took out a patent for improvements in making tannin and dyeing extracts. His claim to the invention consisted in a "Process for treating tanning and dyeing materials, roots, barks, woods, and other valuable substances by digesting them in a solution of sulphurous acid, with or without the addition

res." In this process he has made woody fibre the by-product.

The second point of view from which the waste waters must be regarded, and which I consider as of the greatest importance, is the pollution of the streams into which they are discharged. I might say without fear of contradiction that the manufacturers have felt no responsibility for the injury and injustice they have caused, and have abated the noxious practice only when they were compelled to. With the rapid growth of the paper industry, the building of enormous plants for the production of wood cellulose, denuding the wooded forests and mountains, the cities of rivers, which most of our cities depend upon for a supply of pure water, the degree of pollution is increasing. It is idle and a useless waste of money for the Government to maintain a department of fisheries to protect our lakes and rivers with, into which the highly deoxidized waste waters of the sulphite mills are discharged. Between the problem of obtaining clean products and the treatment of the waste water to avoid polluting the streams, I believe the latter is the more important and is the rational way to solve both problems.

The public everywhere will soon demand that their sources of water shall not be contaminated, and will legislate to secure this end.

As above stated, no efforts to purify waste waters and those from the factories have been made except some crude method of screening to save the product.

Papermakers have many prejudices against even this as effecting economies for them, yet to save the cost of coal and mineral filling, and avoid pollution of the streams, is a comparatively easy problem, but I predict little will be done until legal processes are instituted. The waste waters from the rotary mills in which all kinds of rags are usually cooked with lime, and sometimes a little soda ash, have always been discharged with no other concern whatever than the convenience of the manu-

facturer. The residues of the solution of bleaching powder have been disposed of in the same way.

Coming now to waste polluting by-products of the alkaline processes for cooking wood and woody tissues as flax, rye straws, esparto, etc., we have first and of greatest importance the waste or spent alkaline liquors with their large content of complex organic matters. The alkali in these has always been recovered as carbonate, except in the "sulphate" process, in which a portion is recovered as "sulphide." This was formerly accomplished in a very crude way by evaporating and burning off the greater part of the organic matter in open shallow pans. For the last fifteen years this has been done with multiple effect vacuum pans and rotary furnaces at a great saving in cost. The proximate analysis of a typical spent liquor resulting from cooking poplar wood is as follows:—

	Per Cent
Silica	0.11
Iron and aluminum oxides....	0.02
Calcium oxide	0.05
Magnesium oxide	—
Potassium oxide	0.69
Sodium oxide	25.69
Carbon dioxide	3.43
Absolute acetic acid	9.89
Organic matter extracted by naphtha, boiling under 60 deg.	1.56
Ether	7.14
Absolute alcohol	28.26
Water	17.02
Total alkalis estimated with normal acid by incineration of the evaporated liquor ..	44.25

From this we see the enormous quantity and nature of the organic matter removed in the process. Note especially the acetic acid. An analysis of spent esparto liquors reveals much similarity in composition and nature, showing also a large percentage of acetic acid. These liquors are not polluting wastes to any extent, but the by-products of the recovery process are, but are not so

objectionable in character as many others. These by-products are refuse black ash waste composed in the dry state principally of porous carbon and the insoluble mineral substances in the black ash. This dry waste amounts to about 15 per cent. of the reclaimed soda ash, and in average large works about six to ten tons daily, dry weight. The usual practice in disposing of this is to sluice it off into the streams adjoining the works after bleaching.

The other great waste is the enormous amount of precipitated calcium carbonate resulting from the causticizing of the re-claimed ash, and amounts to 25 to 50 tons daily in average large works. The practice of disposing of this waste is the same as above.

Finally, we have the waste liquor from the sulphite process, which is the largest of all paper mill wastes and the most objectionable from every standpoint. It is the only waste water, however, which has received any considerable attention from paper chemists and manufacturers. Interest in this has not been elicited by the desire to render the waste less noxious and unpleasant, but with the idea that it contained valuable products which could be recovered easily. As stated above, two years after the process was invented by Tilghman in 1867, he was granted letters patent for the production of tanning and dyeing extracts from spent liquors.

Some of the methods proposed for the treatment of waste sulphite liquor are as follows: Alex Mitscherlich has proposed by an elaborate treatment the manufacture of a tanning agent, an agglutinant, alcohol and a food for animals, etc., in British letters patent number 12927, 1893. Since then he has made other claims for similar products.

C. D. Ekman has proposed a process for the recovery of a dextrine-like product, which he called "Dextrone."

Viggo Drewsen claims a process for the production of organic substances insoluble in water, and sulphurous acid and inorganic substances, soluble in water. Drewsen and Dorenfeldt by an

elaborate process claim the recovery of sulphur as sulphur and sulphurous acid. Dorenfeldt alone claims to make a concentrated liquid fuel delivering it to the fire chamber in a fine spray.

Heinrich Seidel claims a mordant for wool, which he calls "sulphoderivate lignin."

One of the latest attempts to dispose of this liquor which has come to notice was the following: The liquor was first delivered into huge tanks so distant from the mill. These tanks were provided with steam aspirators with the intention of sucking up and discharging the liquor in a fine spray to the air. The inventor claimed that the liquor so sprayed would be deposited into the air as clouds of steam. The results need not be mentioned here.

The history of all this work is interesting, but has thus far proved fruitless, and manufacturers will shortly, as some of them are now, be confronted with this proposition in another form. No useful products, if there are any, will be thrown aside and the treatment of the waste, from a sanitary standpoint, will be taken up. This consideration will be paramount.

The treatment of this waste in scientific books has been brief, consisting usually of extracts taken from some of the claims I have enumerated. Griffin and Little, in their text book on papermaking barely touch upon this subject, simply quoting from Dr. W. B. Dörsch, in the "Papier Zeitung" of March, 1891, and W. Naylor in his recent work (1902) on "Trades Waste" copies this statement along with two or three others dating back as far as 1867. From his own observations and he offers no information for the solution of this problem. His chapter on "Paper Mill Refuse" is largely taken up with descriptions of the process of reclaiming soda ash in the treatment of paper and esparto, which is really not itself a refuse, but a part of the process of making paper stock. One main plan of purifying all

ers containing suspended matter is vast settling areas. There is nothing new suggested and very little that is economically available. These references are typical of the literature of the subject up to date, from which we see that very few really practical ideas have been formed for the scientific treatment of this class of waste waters.

Method Proposed.

I shall divide these wastes into two general classes.

Those containing substances of well-known character, which may be separated out and which may be directly used in the manufacture of paper or into practically useful products. Under this class I shall include the wash waters from the beating engines and paper machines, containing fibrous matter and soluble mineral filling and generally waters containing either of these substances, also black ash carbon waste and the precipitated calcium carbonate. I do not include useful products, which may be obtained and which are not losing sources according to present prices—as acetic acid from the acetates in spent soda liquor. In the second class, I include the waste waters from cleansing operations of the rag and bleaching solution residues and sulphite liquors. In the treatment of wash waters containing stock and soluble mineral matter, great difficulty is experienced in any attempt to filter these substances as the filters become clogged so quickly that nothing will pass through them. There are many objections to settling them out in tanks and recovering them in this way. I have found by practical experience that if these waters are received in, say, two large tanks alternately, a small percentage of new coarse stock, of the class from which the product is made, where the recovered waste is clean as from the machine, of an inferior grade of stock, as sulphite mill washings where the recovered waste cannot be clean, be added and well mixed and the whole discharged into a

drainer, it will drain very fast and all suspended matter will be collected so that it can easily be used for inferior grades of paper, as wrappers, and the effluent waters will be clean.

Many attempts to use the black ash waste have been made, as for cheap pigments and inks, but I recommend partially drying in suitable apparatuses with a warm air blast and burning under a boiler with forced air draught.

Many minor uses can be made of the calcium carbonate waste, but when it is produced in large quantities the best disposition of it is to reburn it with liquid or gaseous fuel in a continuous rotary kiln, reclaiming the lime for use over again. This waste can also be made into Portland cement of high grade by proper mixing with clay. This process is practically carried on in Detroit, Mich., on a large scale.

Regarding methods for treating the second class of waste waters, I would suggest a careful enquiry into Nature's process for dealing with substances offensive to her. Enormous quantities of ripe vegetation she is continually disintegrating through processes of decay, and the products are being transformed by plant life into new growths. Some substances are more resistant to her processes than others, but, in the end, all must submit. The great advance in methods for treating sewage have been made directly along the lines of Nature's processes. Chemists and engineers have simply aided her to do the work easily and quickly. So, I believe, shall we dispose of the most objectionable sulphite waste and aid Nature's processes to oxidize and disintegrate until we shall have nothing polluting or impure resulting.



HEMP WASTE FOR PAPER.

For twenty years M. A. Myallionier, of the San Cesario paper works, (Italy), has been experimenting on the use of hemp waste for the manufacture of packing paper.

Experiments had been made in this line by others, but it is only within the past six or seven years that hemp waste has been successfully transformed into paper pulp. Recently the "Cartiera Italiana," of Serravalle, and the Reali factory, of Treviso, have also commenced to make use of this raw material.

Although hemp has a ligneous appearance it affords a longer fibre than that of straw; it is also richer in cellulose, as appears from the following analysis of hemp waste from two sources:

	Castel- franco Emiliano	Mar- cianise Caserta
Water	10.62	10.75
Mineral matters	1.70	2.17
Substances soluble in wa- ter	4.31	4.70
Fat and wax	2.08	1.87
Cellulose	60.18	59.81
Incrusting matter	10.57	11.12
Various substances	10.54	11.12

These and other results justify the assertion that hemp contains but a small amount of mineral and incrusting substances, and that consequently it is well adapted to economical manufacture in place of straw.

The maceration of the hemp may be effected hot or cold, in masonry vats, but it takes twice the time of that of straw. The Myallonier factory makes this maceration hot, in cylindrical vats four meters deep and of the capacity of twenty cubic meters, supplied with a steam pipe. The maceration, hot, is produced with milk of lime and does not take longer than thirty-six hours. The Panzano factory prefers maceration cold. This operation requires fourteen or fifteen days in summer and twenty or twenty-two days in winter, whereas for straw, seven or eight days are needed in summer, and twelve days in winter.

As the hemp is free of knots, it undergoes a uniform transformation and after trituration gives quite a homogeneous pulp. The proportion of lime to be employed is from 15 to 25 per cent., from 5 to 10 per cent. more than neces-

sary for straw. This disaggregation is recognized as complete when the fibre divides under the pressure of the finger and all the mass takes on a uniform reddish yellow coloration. It is removed from the vats and allowed to ferment from twenty-four to forty-eight hours before being washed and urated.

The factory at San Cesario has a set of four special washers. For a production of 2,000 kilograms of paper pulp this washer consumes somewhat more than one horse-power. Its exterior dimensions are 4 by 3.50 meters; the consumption of water is estimated at 150 liters per minute.

The work of the stones requires, for four hours, that is, a little more than the time for straw pulp. The pulp obtained is carried to the vats, which should be provided with special blades in order to insure a good mixture. Instead of pursuing a circular course the pulp is drawn to the periphery, and the pipe reconducts it to the vat, where it is brought under the roller. The sizing of the pulp intended for paper takes from three to four hours. The sizing and coloring are effected in the refining vat.

The employment of hemp is recommended on account of its richness in cellulose.

The development of the manufacture would contribute to the extension of cultivation of this plant in Italy, which does not seem previously to have attracted much attention.

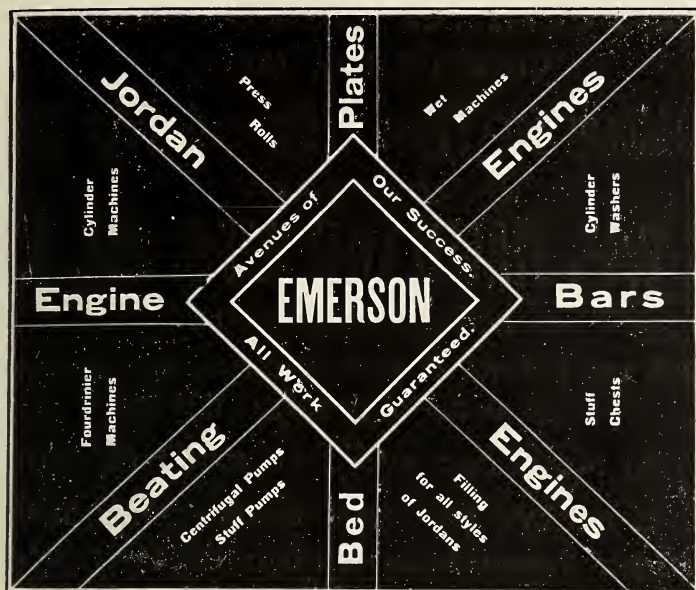


MILLS.

The Riordon Paper Mills Company have made Merritton the headquarters for both mills, and the office staff at Hawkesbury has been transferred to Merritton.

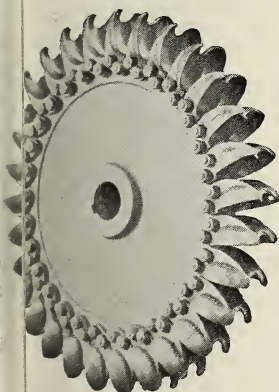
Price Bros., of Quebec City, will build a pulp mill at Grande Baie, this summer and expect to have it in working order next summer. The Municipal Council of Grande Baie has accorded exemption from taxation.

EMERSON MFG. CO.



LAWRENCE, = = = MASS.^F

BOILERS, TANKS, FILTERS,
MILL MACHINERY, ETC.



Sole Manufacturers in Canada of

DOBLE WATER WHEELS

AND

WORTHINGTON TURBINE PUMPS

Baker and Shevlin Screens, Etc.

McDougall Caledonian Iron Works Co., Limited, Montreal.

EXCLUSIVE LICENSEES IN CANADA.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,

Ejector Vacuum Pumps — Bertrams Limited — Patent.

DR. C. WURSTER'S Patented Pulping Machines & Kneaders

For PULPING UP MACHINE "BROKE," OLD PAPER
STOCK, WASTE PAPERS, DRY WOOD PULP, &c.



Three Segment Pulping Engine—Trough 800 and 2,000 lbs.

OVER 200 SOLD

3

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N.
ENGLAND.

These Machines, with same power, do from 1 to FOUR TIMES the WORK of STONES without Shortening, Aging, Creasing, or Weaving the Fibre in any way. Changing the Colour of the Sizing.

Beaters not required for making Boards from Paper Stock.

Can be used for Kneading Clay and other fillings, well as for Kneading Bleaching Powders, and of the Bleaching Machine.

Four men were badly injured and a building wrecked by the explosion of a tank of benzine at the roofing paper factory of F. W. Bird & Sons, Hamilton, March 9th. The men were working at the benzine store-house with a lantern and the flame ignited the benzine fumes with the result that the whole tank exploded. The explosion blew the whole building down, and the men were battered by flying bricks and badly burned. They were removed to the city hospital.



PULP MARKETS.

The unusually light falls of snow in Ontario and Quebec indicate short crops of logs, and those dependent on the smaller streams may find themselves short. Within the last few days, however, the hard frosts and balls of snow will relieve the situation in several pulp-wood areas. The next thirty or forty days will determine to what extent the mills and dealers will start.

In Wisconsin the mild weather of winter left the swamps in such a state that when snow came the ground was too boggy to get out timber, and in the northern part of the State there has been too much snow. On the whole the delivery of logs will be smaller than usual. (Continued on next page.)

ERRIORDON PAPER MILLS, Ltd.

Errivton and Hawkesbury, Ont.

Errivton Mill—News Paper, Hanging Paper, Wrapping Paper and Building Paper and Sulphite Pulp.
Hawkesbury Mill—Sulphite Pulp.



TENDERS FOR Pulpwood Concessions.

Tenders will be received by the undersigned up to and including the 18th day of April next, for the right to cut pulpwood on certain areas tributary to the Montreal River, in the District of Nipissing, the Nepigon River in the District of Thunder Bay, the Rainy Lake, the Wabigoon River and the Lake of the Woods, all in the District of Rainy River. Tenderers should state the amount they are prepared to pay as bonus in addition to such dues as may be fixed from time to time for the right to operate a pulp or pulp and paper industry on the areas referred to. Successful tenderers will be required to erect mills on the territories and to manufacture the wood into pulp in the Province of Ontario.

Parties making tenders will be required to deposit with their tender a marked cheque, payable to the Treasurer of Ontario, for 10% of the amount of their tender, to be forfeited in the event of their not entering into agreements to carry out conditions, etc. The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital required to be invested, etc., apply to the undersigned.

HON. F. COCHRANE,

Minister of Lands and Mines,

TORONTO, ONT.

Machinery For Sale.

FOR SALE—Two new Black Clawson Jordan Engines. Inlet 5 in., outlets 4 in., cone 2 ft. wide, 4 ft. long. Length over all 14 ft. 8 in. Double bearings on driving end. Apply Box 11, Pulp and Paper Magazine, Toronto, Canada.

ATERBURY BROTHERS, Incorporated.

Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

In the New York market domestic ground wood pulp is quoted at \$12 to \$14, and Canadian at \$17 to \$22. Foreign bleached sulphite, 3.10 to 3.35, domestic bleached, 2½ to 2⅞, unbleached, 1.85 to 2; domestic bleached soda fibre, 2.15 to 2.25; foreign bleached soda in dock, 3.10 to 3.40.



RAG AND PAPER STOCK MARKETS.

Montreal, March 13, 1906.

There is not much change to report in the paper stock market since last month. There is a steady demand for the best qualities of stock, such as white shirt cuttings, shoe clips, etc., all of which find a ready sale.

For the cheaper qualities of cotton rags, such as blues and thirds, colors, etc., there is less enquiry and prices somewhat lower.

Bagging and all jute materials, a manila rope, have advanced very considerably, and there is very little available stock.

Low stock for roofing and building papers is very scarce, and prices normally high. This scarcity of stock is likely to continue all through the summer.

The demand for waste papers is still strong, and some considerable contracts have already been made for summer delivery.

No. 1 white shirt cuttings.....	\$5.50 to
Light print cuttings.....	4.00 to
Unbleached cuttings	4.75 to
White shoe clips.....	4.50 to
Colored shoe clips.....	3.25 to
Domestic white rags.....	2.25 to
Blues and thirds.....	1.25 to
Roofing stock .....	.90 to
Waste papers .....	.35 to
Manila rope	2.75 to
Bagging . . . . .	.85 to

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.
WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines
Steam Engines
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders
Pumps, Heaters

F. H. DAVIS & CO.

161 Devonshire St.,
BOSTON, - - MASS.

BRITISH MARKETS.

The market for chemical pulp is reported firm. Transactions are limited, and dealers are able to get good prices. Prices in mechanical are easier, and considerable quantities are being placed in the market. Straw pulp and esparto are in Rags are reported scarce in the market, and prices show an upward trend. There is also a steady demand on the continent, and shipments from there are on a large scale.



CHEMICAL MARKETS.

The British market in china clay is firm, and shipments from England are in consequence of which prices are firm. There is a good demand for French chalk, mineral white, etc.

In the United States imported china clay is quoted at as high as \$12. Returns from Savannah show an advance in grades of rosin. Alkali, high test, at 75c., in bulk, and 80c. in bags; soda ash powder in car lots, 1¼c.; soda in drums for 1906 delivery,

1.75 to 1.80c., and caustic potash, 4½ to 5½c. for old, and 5½ to 6½c. for new process. The color market is steady.

W. Oyley Mears & Co.,
PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
100 Chambers, Queen Victoria Street,
London, E.C.

AS A WORKING TOOL

for the student and the writer, as an authoritative reference book for schools, teachers, families, business and professional men, there is one book which offers superior advantages in the solid value of its information, and the ease with which it is obtained.

One's admiration for Webster's International Dictionary increases daily as it comes to be better known. It never refuses the information sought and it never overwhelms one with a mass of misinformation illogically arranged.

The St. James Gazette of London, England, says: For the teacher, the pupil, the student and the litterateur, there is nothing better; it covers everything.

The New and Enlarged Edition recently issued has 25,000 new words, a revised Biographical Dictionary and a revised Gazetteer of the World, 2380 pages and 5000 illustrations. It has just received

THE GRAND PRIZE

(Highest Award) at the World's Fair, St. Louis.

Our name is on the copyright page of all authentic Webster's dictionaries.

FREE—"A Test in Pronunciation," instructive and entertaining for the whole family. Also illustrated pamphlet.

G. & C. MERRIAM CO.,
PUBLISHERS,
SPRINGFIELD, MASS



THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, 82 Beaver Street, New York.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway)	..	Kirkegaden No. 20.
GOTHENBURG (Sweden)	..	Lilla Kyrkogatan No. 20.
MANCHESTER	..	Guardian Buildings (opposite Exchange)
LONDON	.. . . .	77a Queen Victoria Street, E.C.
PARIS	.. . . .	Rue de Londres No. 29.
ANGOULEME (France)	..	43 Rue Louis Desbrandes.
LYONS	.. . . .	54, Cours Gambetta.
MILAN	.. . . .	24 Via Solferino
TOLOSA (Spain)	.. . . .	18 Calle San Francisco.
NEW YORK	.. . . .	99 Nassau Street.
ST. PETERSBURG	.. . . .	Little Podjascheskaja House, 4, Qu. 1

Telegraphic Address:

“WERTHEIMO, HAMBURG.”

BARKER,
CHIPPER,
PPER-CUTTER

MACHINE KNIVES

Of Every Description.

The Peter Hay Knife Co., Limited, Galt, Ont.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.

DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.



JOHN KNIGHT & CO.,

CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents for the ... **L.G.V., W.F.,**  and other Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

ESTABLISHED 1842.

heney-Bigelow Wire Works

SPRINGFIELD, MASS.

... Manufacturers of ...

FOURDRINIER WIRES

CYLINDER MOLDS, DANDY ROLLS

— ALSO —

Brass, Copper and Iron Wire Cloth

SOLE MANUFACTURERS OF THE

Patent Flat Wires for Book Papers

STUFF PUMP

This pump is made in three sizes, 5", 6" and 8".

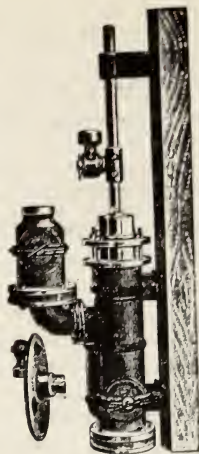
The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by

T. McOUAT & SON, Lachute, Que.,



MAPLE LEAF
STITCHED COTTON D
BELTING
DOMINION BELTING CO. L
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of **GRADED RAGS, PAPER**
ROPE BAGGING, ETC.

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction
Mills at Sault au Recollet, P.Q.

JULIUS FISCHER, Maschinenfabrik
gegr. 1838. **Nordhausen am Harz** ca. 200 Arbeiter.

supplies as a long years and only specialty all machinery and complete installations for making surface-coloured (stained), coated, printed papers Chromo, Art, Baryta Papers. For the preparation of gummed and marble papers. Wall paper printing and all auxiliary machinery, of the latest designs and modern construction.

First class references from all parts of the World

WIRE ROPE
"ACME" BRAND

Highest grade of hoisting rope made.

Extra tensile strength for heavy work.

One strand painted green. Look for

Use Greening's rope grease for lubrication.

THE B. GREENING WIRE CO., Limited
HAMILTON, ONT. **MONTREAL**



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

Cylinder and Fourdrinier Machines.

Tissue Paper Machines a Specialty.

BELOIT IRON WORKS,

BELOIT, WIS., U. S. A.



Announcement

For the greater convenience of our patrons in Ontario and Manitoba we have opened a Sales Office at 12 Lawlor Building, corner King and Yonge Streets, Toronto, Mr. W. G. Chater, Representative.

Correspondents in Ontario and Manitoba are requested to address themselves there and are cordially invited to call when in Toronto.

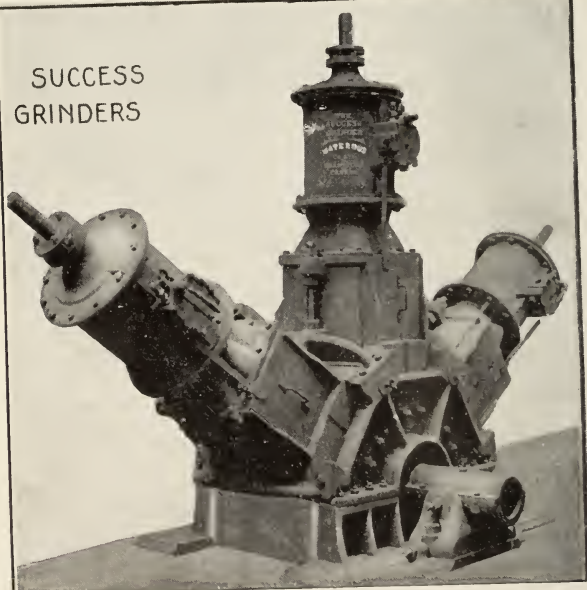
The Jenckes Machine Co., Limited

TORONTO
HALIFAX

Head Office : SHERBROOKE, Que.
Works : Sherbrooke, Que.
St. Catharines, Ont.

ROSSLAND
VANCOUVER

SUCCESS
GRINDERS



"SUCCESS" GRINDERS

We Manufacture a
Line of

Pulp Mill Machines

We repair and
make over
Cylinder Machines

Write for Special
Catalogs.

The Waterous Engine Works Co., Limited
BRANTFORD, CANADA.

THIS MAGAZINE is printed on our "Chalk White" Coated Book Paper—the best and whitest coated paper sold. All regular sizes and weights in stock. The Cover is our Art Litho Cover, stocked in four sizes, 2 sizes, 20 x 25 and $21\frac{1}{2} \times 28\frac{1}{2}$. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Sor Mills, Que. - Montreal. - Toronto.

CK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

J. YOUNG, - - Sole Agent for Canada.

413 St. Paul Street, Montreal.

F

"TURBINE WATER WHEELS"

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from

S. MORGAN SMITH Co.,
NEW YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company.....	14,000 h.p.
Montreal Cotton Company.....	7,000 h.p.
Sturgeon Falls Pulp Co.....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD

Bamford Woollen Mills, Nr. Rochdale, England.

Wallace—Jaastad—Drewsen

ASSOCIATED INDUSTRIAL ENGINEERS AND CHEMISTS

JOSEPH H. WALLACE, C.E.,
M.Am. Soc. C.E., M.Can. Soc. C.E.

A. U. JAASTAD, M.E.,
Steam Engineer.

VIGGO DREWSEN,
Industrial Chemist

Pulp and Paper Mills, Power Developments, Reports, Consultation.

OFFICES AND LABORATORIES—Temple Court Bldg., New York.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent

SOLE AGENTS IN CANADA

Winn & Holland,

=

=

Mont

PULP AND PAPER MAGAZINE

MONTREAL AND TORONTO

VOL. 4.

TORONTO, APRIL, 1906.

NO. 4

FEATURES OF THIS NUMBER

**Pulpwood Questions in Ontario
and Quebec**

Sulphur versus Pyrites

Save the Water Powers of Quebec

**Treating Esparto Pulp by Fer-
mentation**

**Trade Relations with United
States and Britain**

**Forest and Pulpwood Resources
of Canada**

Pulpwood Consumption of U.S.

The Largest Fourdrinier Wire Plant in the World

Eastwood Wire Mfg. Co.

Belleville, New Jersey, U.S.A.

MANUFACTURERS OF

FOURDRINIER WIRES,
CYLINDER and WASHER WIRE CLOTH,
DANDY ROLLS,
CYLINDER MOULDS,
ROLLED BRASS SCREEN PLATES,
PERFECTION BRONZE (cast metal) SCREEN PLATES,
SUCTION BOX COVERS, COUCH ROLLS,
NAME PLATES,
PERFECTION BRONZE, DIGESTER CASTINGS and Y VALVE
for the manufacture of SULPHITE WOOD PULP,
PERFECTION BRONZE VALVES, bolts and fixtures, for SULPHITE PROCESS.
BRASS, COPPER and IRON WIRE and WIRE CLOTH of every description,
BABBITT METAL and all grades of ANTI-FRICTION METAL.
BRONZE and BRASS CASTINGS, from 1 oz. to 20,000 lbs. in weight.

N. B.—We manufacture all of the above articles, and are sole and exclusive dealers. Write for prices to

EASTWOOD WIRE MFG. CO.,

BELLEVILLE, NEW JERSEY, U.S.A.

The Largest Fourdrinier Wire Plant in the World

Foreign Phosphorbronze Fourdrinier Wires,

*Sulphite Pulps, Paper Stock and Rags,
Bleached Straw Pulp, also China Clay.*

JEAN FREESE, Vanderbilt Building
132 Nassau Street, **NEW YORK.**

FOURDRINIER MACHINE WIRES CYLINDER COVERS

Unequalled for Strength, Smoothness and Long Life.

GEORGE CHRISTIE, LIMITED

Ladywell Wire Works, **GLASGOW, SCOTLAND**

Agent—**THOMAS L. PATON**, 30 St. Francois Xavier Street, **Montreal**, who
holds stock for immediate delivery.

EDWARD J. WELCH, Pres. | **EMMONS CROCKER**, Vice-Pres. | **ARTHUR S. MORSE**, Secy.
ADAMS CROCKER, Treas. and Managing Director. | **HENRY W. S. DOWNS**, Supt.

Union Screen Plate Company of Canada, Limited.

Factory, Lennoxville, Que., Offices: { Lennoxville, Que.
Fitchburg, Mass., U. S. A.

Screen Plates



The "Union" Bronze (best phosphorized cast metal) Plates
for Sulphite Mills. The Standard Rolled Brass Plates.

The "Union" Cast Metal Suction Plates.

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

We carry in stock a large supply of the different sizes of both metals and can fill large orders promptly.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

ESTIMATES ON APPLICATION.

KENWOOD FELTS AND JACKETS

Seamless Felts and Heavy 5x
Jackets for fast running machines.
Super Fine Felts for Book and
Writing Papers. ∴ Pulp Felts
for Ground Wood and Sulphite
Pulp.

F. C. Huyck & Sons

ALBANY, N.Y., U.S.A.

BERTRAMS, LIMITED

Papermakers'

Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermakers,
embracing British, American and Continental Improvements.

C. H. JOHNSON & SONS, Ltd.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rcs.

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England.

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

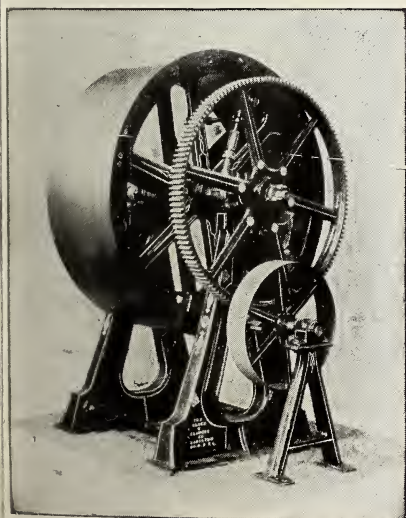
Agents for Canada: C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL.

INDEX TO ADVERTISEMENTS.

Aerbury Bros.....	41	Lea & Coffin, and H. S. Ferguson	9
Boit Iron Works.....	47	Lombard & Co.....	39
Bison & Co., W. T.....	10	Little, Arthur D.....	9
Butley & Jackson.....	4	McDougall Caledonian Iron Works, The	
Btram's, Limited	6	John	37
Bck-Clawson Co., The	7	McOuat & Son, T.....	46
Bdt & Co., F.....	10	Mears, D'Oyley & Co.....	43
Binner, Mond & Co., Limited	50	Merriam, G. & C. Co.	43
Clada Paper Co.....	49	Miramichi Pulp & Paper Co.....	39
Canadian Rubber Co. of Montreal.....	8	Paton, Thomas L.....	3
Ctle, Gottheil & Overton	9	Perrin & Co., Ltd., Wm R.....	42
Cistie, J.....	50	Porritt & Sons, Joseph.....	10
Cistie, Limited, George	3	Porritt & Sons, Limited, Samuel	50
D'is & Co., F. H.....	42	Porritt Bror. & Austin.....	6
Dew, J. A.....	9	Pringle & Son, T.....	9
Don Machine Co.....	38	Pulp & Paper Trading Co., The.....	45
Dnion Belting Co.	46	Pusey & Jones Co.....	40
Etwood Wire Mfg. Co.....	2	Quebec & Lake St. John Ry.	8
Eerson Mfg. Co.....	37	Ritchie & Ramsay....	45
Fisher, Julius	46	Riordon Paper Mills, Ltd.....	9
Fese, Jean	3	Smith Co., S. Morgan	49
Gening, The B., Wire Co., Limited.....	46	Union Screen Plate Co.....	3
Hdy, George F.....	9	Union Sulphur Co., The.....	43
Hvksworth & Sons Co., Limited, Alfred.	12	Vogel, C. H.....	9
H Knife Co., Limited, Peter	45	Walker, J. R. & Co.....	46
Hne, J. H., & Sons Co.....	10	Wallace-Jaastad-Drewsen	50
Hgh, R.....	50	Waterous Engine Works Co., Ltd	48
Hck & Sons, F. C.....	5	Wertheim & Co., A.....	44
International Pulp Co.....	9	Whittaker, Richard	11
ekes Machine Co., Limited	12 & 48	Wilson, Paterson & Co.	12
onson & Sons, Limited, C. H.....	6	Winn & Holland	50
Kstein & Co., A.....	11	Wurster, Dr. C.....	40
Kiball, Herbert S.....	9	Young, J. S.....	49
Kight & Co., John.....	45		

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.



Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

from new patterns and designs embodying the latest improvements.

Foot-power Perforators.

3 Roller Ink Mills.

Evaporating and Drying
Machinery.

We Solicit Correspondence.

Honest

Value

Com-
plate
Satisfac-
tion

We Make a Specialty of Covering
Couch, Press
 and
Squeeze Rolls
 For **PULP** and
PAPER MILLS.

Rubber Diaphragms
 for Screens.
 Deckle Straps.

Rubber Belting,
 Packings, Valves,
 Caskets, Fire,
 Steam and Water
 Hose, etc., etc.

WRITE US FOR ALL Your
 Requirements in Rubber.

The Canadian Rubber Co.
Of Montreal Limited.

SALES BRANCHES:

172 Granville Street, Halifax, N. S.
 Imperial Bank Building, Montreal, Que.
 Front and Yonge Sts., Toronto, Ont.
 89 Princess Street, Winnipeg, Man.
 462 Cordova Street, Vancouver, B. C.

D. LORNE MCGIBBON,
 Vice-President and Managing Director.

The Pembroke Electric Co., have recently awarded contracts for the machinery for their new power plant on the Black River a few miles from Pembroke. The hydraulic plant consists of two 900 horse-power units, each composed of a special 30-inch cylinder gate Crocker turbine operating under 120 feet head. Each wheel will be enclosed in a steel case 10 feet diameter, made of 1/2-inch plate fitted with heavy cast iron discharge elbow, both units substantially mounted on steel girders, and complete with draft tubes, etc., and two Lombard Type "P" water-wheel governors. The water will enter both cases from underneath, a gate valve being placed in each inlet pipe. The water-wheel runners will be made of bronze, and each wheel will be directly connected to a 500-kw. alternating current 3-phase Westinghouse revolving field generator. For driving the exciter there will be provided two 15-in. turbines, each enclosed in steel case, each developing about 50-horse-power. These wheels are also built with bronze runners. Under 120 feet head they run 900 revolutions per minute, and will be direct connected to the exciters. The hydraulic machinery is being furnished complete by the Jenckes Machine Co. Limited, of Sherbrooke, Que., and in order for the generators and exciters to be placed with the Canadian Westinghouse Co., Montreal.



QUEBEC
 AND
LAKE
ST. JOHN RAILWAY

This Railway runs through Two Hundred Miles of the Finest Spruce Forests of America, through a country abounding in Water Powers suitable for Pulp and Paper Mills and other industries, and easy access to the Steamship Docks at Quebec.

ALEX. HARDY,
 G.F. & P.A.

J. G. SCOTT,
 General Manager

QUEBEC, P. Q.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT and ENGINEER
SPECIALIST IN
Pulp and Paper making. F

T. PRINGLE & SON

Specialities:—Pulp Paper and Fibre Mills,
Hydraulic Developments and Electrical
Transmissions
409, 410, 411, 412 Coristine Bldg.,
MONTREAL. F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
101 Tremont St., Boston, Mass.

Designs, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and Pyrites Burners for the Sulphite Process. F

C. H. VOGEL

A. M. Can. Soc. C.E. **ENGINEER**
OTTAWA, CAN.
WATER POWER
Paper, Pulp and Sulphite Fibre Mills

GEORGE F. HARDY, M. AM. SOC., M.E., M. CAN. SOC. C.E.

Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of Mill Properties, Water Power Developments.
Mutual Reserve Building, - 309 Broadway,
NEW YORK.

LEA & COFFIN, and H. S. FERGUSON, ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
Water Power Development and Transmission. Steam Power Plants.
CORISTINE BUILDING, MONTREAL.

'Asbestine Pulp' Filler

Superior to any Clay.

Delivered price on application.

INTERNATIONAL PULP CO.
New York City, U.S.A.

THE RIORDON PAPER MILLS, Limited.

Merritton and Hawkesbury, Ont.
Merritton Mill—Newspaper, Hanging Paper, Wrapping Paper and Building Paper and Sulphite Pulp.
Hawkesbury Mill—Sulphite Pulp.

J. A. DeCEW, B.A. Sc.

Consulting Chemical Engineer.

SUN LIFE BLDG., MONTREAL

Agent for the Sale, Purchase, or Inspection of Technical Materials.
Tests and Reports on Lubricants, Fuels, Papers, Chemicals.
Investigations and Advice on Apparatus, Processes and Resources.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

CHINA CLAY **ROSIN,**

Best Paper
Makers' Strained

Bleaching Powder. Soda Ash.
Ultramarine Blue.

STARCHES — *Highest Grade Pearl
and Potato.*

FT

W. T. BENSON & Co., 164 St. James St., Montreal.

JOSEPH PORRITT & SONS HELMSHORE NEAR MANCHESTER **FELTS**

and **JACKETS FOR PULP and PAPER MILLS**

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes

Agents for the States and Canada,



F. BRÉDÉ & CO., - 240 Water Street, NEW YORK.

Established 1864

Incorporated 1888

J. H. HORNE & SONS CO.,
LAWRENCE MASS.

MANUFACTURERS OF HIGH-GRADE

PAPER MILL MACHINERY

Beating and Washing Engines

"Jordan" Engines

"Horne" Improved Patent Engines

"Cloudman" Cylinder Washers

FOURDRINIER, CYLINDER & WET MACHINES

"Horne" Friction Cutters

Fan Pumps

Rag Knives

Cone Pulley Cutters

Stuff Pumps

Roll Bars

"Horne" Calenders

Calender Rolls

Bed Plates, Etc.

ORDERS FILLED ON RECEIPT

GET OUR CATALOGUE

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal

Sulphate Alumina

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y



127 BOARD OF TRADE BLDG., MONTREAL.

Agents for the United Alkali Co. of England

OFFER TO THE TRADE :

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.

F



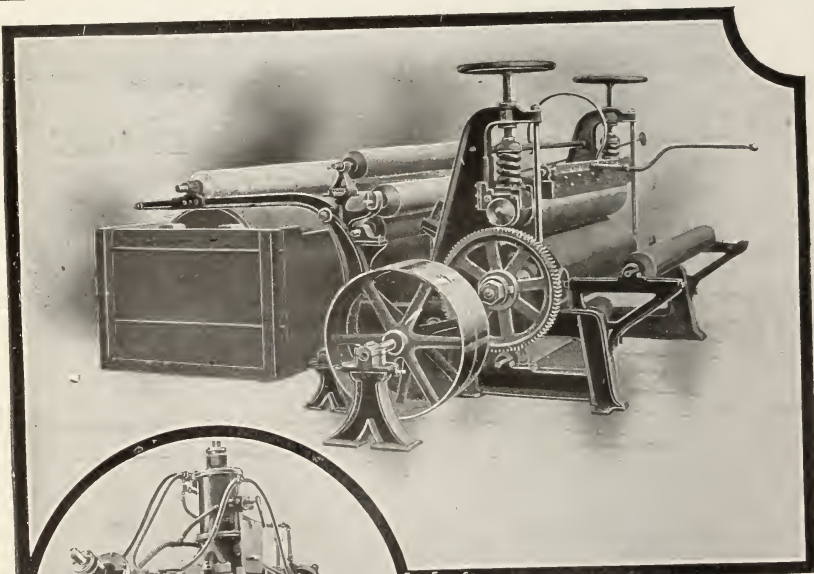
VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature, or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leathers. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Haworth & Sons Co., Limited
Mill Engineers and General Furnishers,
551 St. James Street, - Montreal.



JENCKES CO.

The JENCKES Machine
Company, Limited,

117 Lansdowne Street,
Sherbrooke, Que.

THE PULP AND PAPER MAGAZINE OF CANADA

VL. 4.—No. 4.

TORONTO, APRIL, 1906.

{ \$1 A YEAR
{ SINGLE COPY 10C. }

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

SUBSCRIPTIONS: Canada, British Empire and the United States, \$1 a year; to Foreign Countries, 5s. a year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publisher's hands not later than the 10th of the month, and, where proofs are required, ten days earlier. Cuts should be sent by mail, not by express.

E. B. BIGGAR,
PUBLISHER

A. M. FISHER, Business Manager.

80 CONFEDERATION LIFE BUILDING, TORONTO,
CANADA.

ANGLO-CANADIAN TRADE.

There is nothing easier than to get into a rut, whether in personal habits or public policy. It usually takes a mighty effort to get out of the rut, especially in affairs of Government. It will be a blessed thing for the trade relations of Great Britain and Canada if the letter recently written to the London "Times," on the British consular service, by F. C. T. O'Hara, superintendent of Canadian Commercial Agencies, Department of Trade and Commerce, awakes the British Government to the need of a change. Those interested in the import trade of Canada may have often wondered why every important country under the sun has consular agencies in the big cities of

this country, looking after trade opportunities as well as watching political movements, while no organization exists in Canada for keeping British manufacturers posted on trade developments, either here or in any other group of Britain's colonies. It has remained for Mr. O'Hara to disclose the situation so clearly in his letter to the "Times" that there is really a prospect of something being done to put British merchants on as good a footing as foreign merchants at least in British colonies. Mr. O'Hara points out that there are 372 consular officials in various cities in Canada, of which 189, or more than half, represent the United States, and that practically all these representatives are here to promote the trade of their country with Canada. Canada herself has a dozen commercial agents in the Mother Country keeping Canadians posted on trade openings, and introducing Canadian goods into quarters where no trade has been done before; but because a British colony is under the British flag, it appears to have been taken for granted in the Old Land that trade would go on forever of its own accord. The remarkable development of United States trade with Canada, for example, shows that while trade follows the flag, it does not always stay with it unless efforts are made to hold it. Foreign nations are taking business right from under the

noses of British firms in British colonies, because these foreigners push their business by advertising in trade journals and catalogues, by having good agents, and by the assistance of consuls, who advise them of the class of goods in demand.

The "Pulp and Paper Magazine" has shown in recent issues how this failure to keep in touch with Canada has worked out in the paper trade, and how, from having the lead in almost every line at the time of Confederation British paper makers have allowed their United States competitors to push in till at the present time the latter now lead in each of the thirty-one main items of Canadian paper imports.

The tendencies of trade in Canada and the other portions of the Empire ought to furnish self-evident reasons for the establishment of a Bureau of Commercial Information, comprising a central office in each colony, and resident agents in the principal cities who can act for any exporter who desires to improve his trade connections with the colonies. In the case of Canada we would suggest that the Bureau publish here a weekly bulletin of information for circulation in Great Britain, not merely to keep British manufacturers advised of new markets, but as an object lesson in the benefits of cheap newspaper postage. Every copy received there would remind the British merchant or manufacturer that the postage on a British publication is sixteen times that charged on a like publication issued from the office of a Canadian publisher.



The decision of the United States Board of General Appraisers (customs), in the case of Meyers & Co., was briefly

summarized in last issue. As the text of the judgment has confused the mind of many, it may be well to refer to the case again. Meyers & Co., had shipped to the States from the Lake Megantic Pulp Co., of Quebec, a quantity of pulp on which the collector of customs at Plattsburg, N.Y., had levied an export duty at the rate of 25 cents on each cord of wood used in the manufacture of the pulp in question. The United States duty on mechanical pulp is 1-12 cent per lb. dry weight on chemical pulp, unbleached; 1-6 cent per lb., dry weight of chemical pulp, bleached; ¼ cent per lb. dry, but it is provided "that if any country or dependency shall impose an export duty on pulp wood exported to the United States, the amount of such export duty shall be added to the duty herein imposed upon wood pulp when imported from such country or dependency." Now the Crown lands' regulations of the Province of Quebec provide that a stumpage tax of 65 cents a cord shall be imposed on pulpwood taken from crown lands, but a rebate of 25 cents a cord is allowed on this if the pulpwood in question is manufactured into pulp within the Province. No stumpage is charged and no duty levied where wood is taken from private lands. In the course of his judgment the case of Meyers, the chairman of the board of appraisers said: "We find from the evidence that the pulpwood from which this wood pulp was manufactured was all cut from Crown lands in Canada. It has been held by the board that the laws and regulations of the Province of Quebec, Canada, levy an export duty on pulpwood of 25 cents per cord on where such wood is taken from Crown lands, and that no duty is levied on pulpwood cut from private lands. * * *

We find accordingly that no export duty is levied by any province of the Dominion of Canada on the pulpwood from which the wood-pulp in question was manufactured. The additional duty, therefore, was improperly assessed by the collector." From what has been said before it will be apparent that the appraiser's manner of stating the case is misleading, because not only does the Province of Quebec impose no export duty, but it has not the power to do so. An export duty is the prerogative of the Dominion Government only, and that authority has not yet exercised its power in this matter. It would be true to say that this collector of customs and others in the States, acting under instructions from Washington, held that the stumpage rebate in Quebec was the equivalent of an export duty, or was held to be so ineffect, but no one in Canada admitted the fairness of the interpretation, and it is a question whether more than a small minority in the trade in the United States ever thought it fair, when examined. It should be added that the Quebec regulations applied not only to shipments of pulp to Europe, but even those to other provinces, so that there was no discrimination against the United States.



The statement was made at the last annual meeting of the American Paper and Pulp Association, held recently in New York, that Canada contributed during 1905 to the pulp and papermakers of the United States pulp-wood in amount equivalent to the total supply to the industry by the forests of Maine, New Hampshire and Vermont for 1905. The manufacturers of wood pulp papers were thoroughly alive to their insecure

position in case Canada should decide to utilize her own natural resources, even to the extent of requiring that this pulp-wood be manufactured into pulp in Canada, but as against this there was a feeling of confidence that the Canadian Government would not dare do anything against the wishes of the manufacturers in the United States. At the meeting of the Publishers' Association of the United States, since held, the statement was made that there ought to be no difficulty in securing the abolition of the duty on wood pulp on the part of the United States Government, especially in view of the fact that the United States sold to Canada last year merchandise amounting to \$162,700,000, and bought of her less than \$77,400,000. In other words Canada is too good a customer to lose, and a little backbone on the part of some one was all that seemed to be necessary to accomplish this. Statistics were recently given in this magazine showing the general trade relations between the States and Canada, and especially the trend of trade in paper and paper products. A valuable commentary on all this is the statement made by the "American Lumberman," elsewhere quoted, in reviewing the new work on the lumber industry of America just out. That authority recognizes that the primacy in the world's pulp industry, if not in the world's paper industry, belongs to Canada by natural right so long as the world's paper continues to be made chiefly from wood.



J. E. A. Dubuc, manager of the Chicoutimi Pulp Co., went to England last month, and previous to leaving home made arrangements to organize a new harbor company to improve the facilities for shipping from Chicoutimi.

Pulp & Paper Currency

Canada still continues to be the best customer the United States has in the world in the paper trade, excepting Great Britain alone. In the eight months ending February, the Mother Country imported \$1,666,817 worth of paper from the United States, and Canada imported to the amount of \$1,366,202, the next largest customer of the United States being Australia and New Zealand, with \$645,895. In each of these cases the imports represented an increase over the corresponding periods of 1905.



Weaving fourdrinier wires by machinery is a problem which is reported to have been successfully solved by Gilson W. Jennings and H. C. Phelps, at Lee, Mass. Those in the business in the United States say such a machine would be welcome owing to the troubles constantly experienced with the weavers of hand-made wire cloth of this class. These difficulties appear to be of the same sort as those occurring among the weavers employed on pulp and paper felts, and some other branches of textiles where special skill and experience is required, and where men take advantage of the fact that they cannot be easily replaced.



Mention has been made in previous issues of the large deposits of kaolin, or china clay, in northern Ontario and Quebec. This material, used in the paper and textile trades, is found in large quantities in the neighborhood of extensive deposits of quartzose sand used in the manufacture of glass, while vast beds of peat are available for fuel and for certain grades of paper, if the experi-

ments now being carried out in peat paper making prove as successful as reported. A member of the geological survey is enthusiastic on this subject. He says the quartzose sand is the finest of the kind he ever saw, and predicts that it will in time displace the quartzose now used on this continent, and that the northern kaolin will take the place of that now imported from abroad. In concluding his report on the minerals, he says: "The mining of lignite and getting out of kaolin, potter's clay and fine sand is not subject to the risk and uncertainty attendant on most other kinds of mining. I am strongly of opinion that, whatever price the land bears for, or in whatever quantity, a small royalty should be insisted on. It may afford a very large and permanent revenue some day or other."



The legislation placed on foot by the new Ontario Government is of a radical type compared with that of any Province of Canada in recent years, but one will deny that it shows courage, activity and an intention to give the people instead of private corporations all the advantages of the great assets of the Province. The Government proposes to extend the principal of public ownership in railways, having found the Temiskaming and Northern Ontario Railway, so ably directed by its commissioners, to be a profitable enterprise. The commissioners, under the chairmanship of Cecil B. Smith, recommend the building of a branch from Sudbury, and will electrify the whole system, thus making it the longest of railway in the world converted from steam to electric motive power. The substitution of electricity for steam

would be the salvation of our northern forests from fires, because there would be no danger from the flying sparks which have destroyed millions worth of timber in recent years. Hence the pulp and paper men and timber limit owners will rejoice at this new advance in railway construction. Another legislative step of importance to trade and manufacturing is the bill designed to give a firmer hand to municipalities who wish to operate their own telephone systems, where the Bell company gives poor service or charges excessive rates as is so frequently the case. But in the manufacturers' interests the most important departure of the Ontario Government is its probable action on the finding of the commission appointed to enquire into the development of electric power at Niagara Falls. A number of important municipalities in Western Ontario are prepared to go into the development of a transmission of power, and the saving in cost compared with the prices proposed to be charged by the companies now in the field is enormous. The actual cost of transmitting current from Niagara Falls to a distance equal to Toronto is estimated in the report to be only \$45 per h.-p. per year, plus \$8 for cost of development, as compared with \$20 to \$30 with coal. This shows the great advantage of hydro-electric power for those parts of Canada deficient in fuel, and its application is vital to the success of our industries. The necessity of conserving these powers is vital to the pulp and paper trades.



The Belgo Pulp & Paper Co., of Shawinigan Falls, Que., are putting in 2,000 lb. beaters, and a new Jordan mill.

Forestry and Pulpwood

The Miramichi Lumber Company will build a new crossing mill at Chatham, N. B., this year. The mill with machinery will cost about \$50,000, and will give employment to sixty men.

In the Quebec Legislature, Col. G. W. Stephens asked Hon. Mr. Turgeon the following question: "How many square miles of timber limits are yet left in the Province of Quebec to be sold?" His answer was "about one hundred thousand square miles, not counting pulp wood land, etc."

The Michigan Pulp Wood Co., incorporated under the laws of Michigan, has been licensed to do business in Ontario, provided that it shall not use in the Province a capital exceeding \$40,000 without obtaining a supplementary license. The company's attorney in Ontario is J. L. Darling, of Sault Ste. Marie.

Those interested in timber limits will note, in another part of this issue the terms of the important sale of timber lands in the Province of Quebec, on the 21st of June next. At the last sale at Quebec, the prices realized were ahead of any previous records, and the forthcoming sale is likely to be still more successful.

The "Gaspesia Forest, Fish, and Game Preserve," of Quebec, described in the "Pulp and Paper Magazine" last year comprises an area of about 2,500 square miles. This area is now established not only as a forest reserve, but a fish and game preserve, and is to be a park of a permanent character, as in the Province of Ontario.

The recent purchase of timber limits in Quebec by the Union Bag & Paper Co., include the Gres property up the St. Maurice as well as the mills and water powers of the Gres Falls Lumber Co. The limits are on the St. Maurice and tributaries, and contain 1,200 square miles. The Gres property is some fifteen miles up the St. Maurice, with a magnificent water power. This place

will have rail connection with Three Rivers and Shawinigan next summer. The price paid is reported to be between \$800,000 and \$950,000. The Gres Falls Lumber Company succeeded the Warren Curtis firm, which had been lumbering on the St. Maurice for years. The Union Bag and Paper Company had mills and limits in this section, and at Charlemagne. Their head office is in New York.

In the country lying between the Cobalt region of Ontario and the district to the north to be traversed by the Grand Trunk Pacific, are extensive tracts of land heavily timbered with spruce and other pulpwoods, of which Matthew Lodge, of Moncton, speaks hopefully.

He was recently surveying for the G. T. P. He says: "The pulpwood forests are practically inexhaustible, and pulpwood, you know, means money. The timber, which was despised fifty years ago by the lumbermen, is now worth more than the whole forest of fifty years ago. It is practically a country of extensive waterfalls, and these waterfalls will become invaluable in the development of the pulp-making industries. On the Blaine River, within a stretch of fourteen miles there are no less than ten falls of great industrial value and utility. The Blaine River is not a very wide river, but it is a very deep river, with a considerable flow of water."



PULP-WOOD CONSUMPTION IN THE STATES.

The Forest Service at Washington has prepared an interesting preliminary statement, compiled from returns furnished by 159 firms operating 232 pulp mills, of the quantity of wood of different kinds consumed by these mills in 1905. These returns show the following figures:—

Wood.	Soda process cords.	Sulphite process cords.	Ground wood cords.	Total cords.
Spruce (domestic)	53,000	762,000	749,000	1,561,000
Spruce (imported)		386,000	228,000	614,000
Poplar (domestic)	266,000		8,000	274,000
Poplar (imported)	19,000		3,000	22,000
Hemlock		327,000	43,000	370,000
Pine	24,000	19,000	14,000	57,000
Balsam			22,000	22,000
Miscellaneous	48,000	44,000	1,000	93,000
Total	410,000	1,538,000	1,068,000	3,016,000

Total amount of pulp produced is calculated at 1,993,000 tons. When full returns are made a final statement will be issued and this will, no doubt, show a

large increase in the totals. According to the United States census returns in 1900 the total consumption in cords of wood was 1,986,310, so that the increase in the six years is over 50 per cent. even if no additions are made to these returns. As the Forest Service remarks this shows in a striking manner the dependence upon the United States forests caused by the pulp industry.

Among the new industries to be established in Japan is the Toyo Paper Mill Company, of Osaka, which has chosen a factory site on the Katsuragi River, and will manufacture rice paper.

Chemistry in Pulp and Paper Making.

The old method of manufacturing by rule of thumb must be discarded by the modern manufacturer, and in no case is scientific knowledge more needed than in the paper industry. Our neighbors in the United States are beginning to appreciate this very keenly, or such establishments as that of A. D. Little, of Boston, would not flourish. An interesting sketch of Mr. Little's laboratory is given in the "Paper Trade Journal," from which the following notes are taken:—

The recognition of this truism is even now, unfortunately, far more general in Europe, and particularly in Germany, than in the United States. In Germany not only does the Government maintain great laboratories for the chemical and physical control of materials, but the heads of departments in the German universities are in closest touch with the needs and aspirations of German industry, and this not in an academic way, but along the lines of practical endeavor



Analytical Laboratory.

The head of the research laboratory of one of our great electrical concerns is under his direction more than fifty chemists. A single establishment in Germany has over 150 doctors of philosophy on its payroll. All this merely means that exact knowledge regarding the conditions of any industrial operation has to be recognized as better than guesswork, no matter how shrewd the guessing.

as followed in the great manufacturing plants.

The American is apt to say when confronted with these facts that not even in Germany have industries developed so fast and far as in his own country, where such assistance has largely been ignored, and this undoubtedly is true, except along some special lines. But any estimate of the efficiency of effort must take account of the resources behind the effort

and toward the utilization of which the effort is directed. Before this test the self-satisfaction of the American must disappear. The question is not what has been done, but what might have been accomplished. When thus considered the pre-eminence of the German is established beyond controversy. Germany is a relatively poor country of one-seventeenth our territory, about two-thirds our population, beset on every side by powerful neighbors and with natural resources which bear no comparison with

dates back to the introduction of the sulphite process in this country in 1884. The laboratory occupies the entire floor of the large new building, and Mr. Little is now at the head of a staff of experts in the chemistry of paper. The offices and laboratories are lighted by eighteen large windows, supplemented by two great skylights. The floor space is divided into a large general office and library, three private offices, a conference room, a small museum devoted to exhibits of products of the cellulose industries, and util-



Part of Main Laboratory.

our own, and yet in many lines of industry Germany not only distances the United States, but leads the world.

However, the American manufacturer of pulp and paper is to-day calling upon the services of chemists to an extent undreamed of a few years ago.

The A. D. Little laboratory at 93 Broad Street, Boston, Mass., is an example of this progress. It is the outgrowth of a study of the chemistry of cellulose and a familiarity with the practical conditions of pulp and paper making which has extended over more than twenty years, as Mr. Little's connection with the industry

also for microscopical examination of small, well equipped laboratory for general analytical work, and a large laboratory covering nearly one-half the area which is given over to experimental work, special investigations, paper testing, etc.

The scheme of work includes the standardization and testing of supplies, drafting of specifications, the invention and improvement of processes, study of faults in manufacture of products, and, in a word, whatever chemical research may properly attempt to obtain better chemical control of mate-

processes. The general office contains a well selected chemical library, strong in works relating to fibres, paper making and electro-chemistry, together with a complete file of the United States Patent office record, and the complete specifications of all United States patents relating to electrochemistry and other special subjects of invention. There is a comprehensive system of files and reference cards, which not only cover the correspondence and the hundreds of monographs and pamphlets received each year,

water motor and thermometer corrected by the United States Bureau of Standards; the autoclave, designed to carry safely pressures up to 750 pounds to the square inch; tumbling, shaking and grinding apparatus for mixing and sampling; a Hilgard elutriator driven by a gas engine for determining the relative size and amount of the coarse particles or "grit" of clays; a large special drying oven designed by Mr. Little for moisture tests on pulp; other drying ovens immersed in boiling toluene to obtain a



Pulp Digester and Beater.

also makes available the articles of permanent value in the domestic and foreign trade publications and numerous scientific journals.

Included in the equipment of the laboratories are many pieces of special apparatus, part of which is permanently fixed, while other pieces are brought in as needed. Among this apparatus may be mentioned the calorimeter, for determining the heating power of fuel; this is of the Parr type, with

constant temperature of 110° C.; multiple water baths; electric heaters; together with the experimental sulphite digester, model beating engine and molds for hand made paper, shown in Fig. 9. The beater was built by the McKim Foundry and Machine Company, and is fitted with elbow bed plate and adjustable roll. It is driven by a 1 horse-power electric motor. The equipment for the special work of paper testing includes the Schopper and Wendler machines for de-

termining the strength and stretch by the methods of the Königlichen Versuchs-Ansatt, of Charlottenburg; a Mullin tester, Randall and Stickney and Brown & Sharpe micrometers. Comparisons of papers for formation, dirt, etc., are made by transmitted light. The microscopical outfit includes a Zeis-Greenough binocular with two stands, one of which permits the instrument to be moved as desired over the surface of a sheet of paper for the identification of dirt, while the other mount, which carries arm rests, is especially useful when the instrument is employed as a dissecting microscope. For higher magnifications and for taking micro-photographs use is made of a Leitz Ia stand with revolving stage. This instrument is fitted with accessory apparatus for the examination of fibres by polarized light. Much use is made of photography in the work of the laboratory, either to illustrate reports by ordinary photographs of apparatus, specimens and manufacturing plants, or to fix by micro-photography the microscopical appearance of samples of ground wood or other fibres, or the characteristics of the stock in samples of paper. Such micrographs often make more clear than any amount of description the quality of ground wood or the condition of a furnish as to beating. The microscopical examination of papers forms an important part of the work of the laboratory, and the demand for these examinations is constantly increasing. The work is of a class which demands the services of trained specialists, for while the recognition of the principal paper making fibres under the microscope is comparatively easy, and requires only a moderate familiarity with their structural features and associated cells, the problem becomes greatly complicated in proportion as the fibres have been broken down in beating and the difficulty of accurately estimating their percentage in the furnish is correspondingly increased. For this reason the microscopical analysis of papers is rarely attempted by the general chemist. In this laboratory it is now the practice to confirm results by three inde-

pendent examinations by different observers, whose initial estimates are usually in close agreement.

An interesting department of the laboratory is the so-called "Museum," and in which an attempt is being made to bring together samples illustrative of the cellulose industries as a whole. Among the samples already procured may be mentioned those illustrating the different varieties of artificial silks, artificial horse hair, the manufacture of filaments for incandescent lamps, mercerized cotton smokeless powders, cellulose acetate and many standard samples of paper making chemicals. The collection of papers comprises many interesting specimens, such as Russian papers with superb portrait watermarks, papers made in the jails of Burmah by the most primitive methods, sets of hand made standard papers of known composition, Japanese leather papers and English hand made papers reproducing the watermarks and characteristics of the product of the earliest English mills.

A duty is imposed of protecting the client in the quality and money value of his purchases, while at the same time making sure that no injustice is done to the seller in determining these factors. The success of any business must be determined by the extent to which it can secure and hold the confidence of the public, and the continued development of these laboratories of paper making chemistry first established in 1886 is evidence of the service they render.



QUEBEC LIMIT-HOLDERS' ASSOCIATION.

The third annual meeting of the Province of Quebec Limit-Holders' Association was held at the Windsor Hotel, Montreal, on the 28th March, F. P. B. of Sherbrooke, presiding, and Paul Owen, secretary. Among those present were: J. R. Booth, Ottawa; H. Durant, J. M. Dalton, A. McLaurin, F. Farmer, Archibald Fraser, Hiram

Olvin, William Copping, William Price, J. B. Scott, Louis Armstrong, G. H. Perley, M.P., H. K. Egan, G. M. Stearnes. The pulp and paper mills were represented by Messrs. Boyd, Acres, Russell, Jordan, Blackburn, Gooday, Rowley, Ponson and Foy. The following other firms were also represented: Union Bag and Paper Company, York Lumber Company, Price Bros. & Co., Limited, Jaquieres Pulp Company, Price-Porritt Mill and Lumber Company, and the St. Gabriel Lumber Company.

The principal business before the meeting was the method of dealing with timber speculators, who were poaching on the Government limits and reserves. It was unanimously decided to take the matter up immediately with the Provincial Government.

As matters stand, a speculator, under the guise of a bona fide settler, takes up a good piece of timber land with the pretence that he is going to clear it and fulfil his homestead obligations by ploughing and fencing as many acres as is required. Instead of that, he strips

the land of all its valuable trees, and then clears out. According to the settlers' regulations this man is not responsible for anything, but only loses his claim on a piece of land, for which, in the first place, he did not pay a cent.

It was resolved to put this matter before the Quebec Legislature in its true light, and see if the laws relating to colonization could not be changed. Mr. Buck, the president, stated that there was no objection to bona fide settlement. It was found, however, that choice districts were fast falling into the hands of settlers, who fell an easy prey to speculators.

The following were the officers elected for the coming year: President, F. P. Buck; vice-presidents, Wm. Price and H. M. Durant. Executive Committee—Hon. W. C. Edwards and Rod. Tourville (ex-presidents), Alex. McLaurin, Wm. Power, M.P., J. Barn Scott, Archibald Fraser, Carl Riordon, E. B. Bronson, J. M. Dalton, G. H. Perley, M.P., H. K. Egan, G. M. Stearnes; secretary-treasurer, Paul G. Owen.



New Ontario Pulp=Wood Policy.

In the Ontario Legislature the other day C. N. Smith, of Sault Ste. Marie, gave his views on the changes needed in the timber policy of the Province, especially that phase affecting the pulp industry. He thought one of the first acts of this Government should be to appoint a board of appraisers, having a practical knowledge of the country, whose duty it should be to separate the agricultural country from the timber lands where farming land was not found profitable. He pointed out that there were hundreds of settlers up there living on lands that were entirely unsuitable for agricultural pursuits, and, as timber on these lands was not given to the settlers, they found great difficulty in working out a bare existence. It was not fair to the settler to locate

him on such land, but since he had been located the least the Government should do would be to give him the timber on his lot and everything above and below the ground. The speaker said he was glad to hear the Provincial Treasurer say in presenting his financial statement: "We have millions in our forests and millions in our mines, and we intend spending it in the development of the country." If the Government would keep that pledge he would be satisfied.

Mr. Smith then discussed the pulp-wood question, and disagreed from the previous speaker on the Government side, who advocated the policy employed by the Province of Quebec. In Mr. Smith's opinion the policy of the late Administration was the best policy for this Province, inasmuch as it en-

couraged the establishment of industries within our own boundary, created employment for our own workingmen, and provided a market for the settlers in our rural territory. The three pulp mills that had been established under this policy at the Soo, Espanola and Sturgeon Falls had served all three of these purposes, and they are all on a successful operating basis. Such was not the case in the Province of Quebec, where the spruce wood could be taken out of the country in its raw or unmanufactured state. The effect of the policy adopted by the sister Province had been to encourage American monopolies doing business in Canada, and to discourage the development of a native industry in the Province of Quebec. As illustrating his point, Mr. Smith stated that the International Paper Company alone owned 2,000,000 acres, or 3,125 square miles of the finest spruce-bearing land in the Province, and last year 60 per cent. of the raw spruce required to manufacture the news print used by the newspapers of the United States had been cut from the Quebec limits. The news print used by the United States last year was valued at thirty millions of dollars, and the speaker argued that the users of news print across the line would be compelled to come to Canada for their manufactured paper if the Province of Quebec would close the raw material door, which is now open. Directing his remarks to Hon. Mr. Whitney for a moment or two, Mr. Smith urged the Premier to consider the wisdom of arranging a conference between his Government and that of the Province of Quebec on this very important subject.

The Soo representative then made a plea for the settlers in "the great north country." The financial statement showed that the Province had received last year from woods and forests alone the enormous sum of \$2,064,663.91, and on the opposite side of the same page he noticed that the miserable sum of \$178,313.02 had been expended on colonization roads. They would never succeed in developing the empire in the

north on a paltry sum of \$200,000 a year; and, furthermore, the people up there would never rest under such injustice. The country was being milked at the rate of two millions a year, and 10 per cent. of that amount was sent back to develop three-fourths of the area of this great Province. For the development of that country \$1,652,120 had been spent during the past twelve years, and yet some people wondered why it was that the people of New Ontario were dissatisfied with the treatment they had received at the hands of the Ontario Government. "Why," said Mr. Smith, "the Indians receive more in annuities than the industrious, hard-working white settlers receive for their colonization roads and bridges." All they asked for was common justice, and the speaker thought that at least 50 per cent. of the revenues derived by the Province from New Ontario should be sent back for the development of that country. In view of the statement made by the Provincial Treasurer he was hopeful that this would be done in the future.

Mr. Smith then defended the \$2,000,000 loan by the late Government. As a consequence of this guarantee, which became operative in June, 1904, the Helen mine has produced up to March of this year 340,000 tons of hematite iron ore, upon which was realized \$851,422. The blast furnaces at the Soo have manufactured 150,303 tons of pig iron. The Algoma Steel Company has manufactured 2,000 tons of steel rails, and sold them for \$6,400,000, with orders in advance for ten months' output. The pulp mill manufactured 43,000 tons of pulp, which was sold for \$688,000. The lumber sold from the company's saw-mill aggregated \$381,718. Coal used, about 120,641 tons. Coke used, about 144,818 tons. Charcoal manufactured and used, 26,934 tons. Men employed in various works, 4,000. Average wages paid since reorganization, \$150,000 per month, or for two months, \$3,000,000. Average freight per month, \$120,000, or \$2,400,000. Resulting from 700 to 900 cars raw material under load daily.

To Save the Water Powers of Quebec.

In his annual report on crown lands, Hon. A. Turgeon makes some important statements regarding the forestry policy of the Quebec Government. He recognizes it to be the duty of the Government to so preserve the timber resources on the slopes from which the rivers take their rise as to ensure a permanent cover for moisture on these heights. The torrential hurry of the waters from the interior has made the courses of the rivers whose sources have been denuded a danger to the country by flow through. In spring such streams overflow and flood the valleys for a few days, and in summer there is not enough water in them to run a grist mill. It is the object of the Government to protect the rivers that are yet in the primitive state.

To that end," he says, "I have thought that the time had come to recommend to the Executive Council of this Province the creation of a vast forest reserve comprising all that portion of the chain of the Notre Dame or Shick Shock Mountains forming the dividing ridge of the Gape Peninsula, extending from a point twenty miles east of Lake Metapedia to the sixth-fifth meridian west of Green's Bay, about twenty-four miles from the Gape Basin. From the flanks of those high mountains all the rivers of Gaspesia flow; some into the Gulf of St. Lawrence, some into the Baie des Chaleurs. At this moment I am having the nature of the country adjoining our international frontier on the east studied with the view of procuring the information I most need for the creation of a similar reserve in that part of the country of Beauce adjoining Maine and New Hampshire, along the high lands constituting the watershed of the waters tributary to the Atlantic on the one side, and to the St. Lawrence on the other, where the Chaudiere and a great many of its tributaries take their rise."

On the need for better protection from fire he said:

"In order to make the means of protection hitherto in use more effective and to prevent the starting and arrest the progress of fires, I deemed it advisable to organize a new protection service to be in force on the north shore of the St. Lawrence from the eastern boundary of the St. Maurice Basin to the Straits of Belle Isle and on the whole of the south shore of our great river."

The Government will dispose of certain Seigniori lands and of the Jesuits' estates, which it holds. "The collective area of those lands according to the most recent calculations is 1,091,395 arpents, including Lauzon. Deducting the unconceded lands of the Seigniories of Cap de la Madeleine, Batiscan and St. Gabriel, which have been under timber license for more than half a century, there remains an area of at least 637,000 arpents paying rent to the Government and the value whereof was estimated at \$1 per arpent by L. L. Rivard, the then superintendent of that branch in 1889, when the question of the Jesuits' Estates was settled. As the administration of those estates is costly, as they yet yield but little in proportion to their real value, and as there seems no probability of an improvement in the situation, would it not be better for the Government, under the circumstances, to dispose of them at a remunerative price since it cannot itself administer them with profit owing to considerations of political interest which are known to everybody, and which have, nevertheless, prevailed under every regime. Such a sale by auction, after being advertised long beforehand, should necessarily attract a good many capitalists both in this country and from abroad who are anxious to secure good investments. It seems to me that this would be an easy way for the Province to realize a considerable amount while relieving itself of an expensive service and ever-recurring sources of difficulty and trouble."

On the returns from water powers disposed of he says:—

"The amounts collected under the head of the Crown Domain in consequence of certain concessions of water powers and beach and deep water lots show a considerable increase over the corresponding revenue for last year; such increase amounts to \$59,821.79. The sales of the great falls and rapids of La Tuque on the River St. Maurice have largely contributed to this good result. That concession to Canadian capitalists already engaged in building the branch line from the Quebec and Lake St. John Railway to the St. Maurice, the preliminaries whereof had already been settled by my predecessor in March last, was, under my direction, most happily concluded in June last. The conditions imposed on the persons engaged in the undertaking are such as to assure, within a short time, the establishment at that place of extensive industries whose importance will greatly influence the speedy development of the resources of the whole St. Maurice Valley.



ONTARIO PULP-WOOD CONCESSIONS.

It will be interesting to watch the outcome of the sale of pulp-wood concessions in Ontario, tenders for which will be received up to the 18th inst. The agreements will relate to those concessions made by the late Ontario Government which have been cancelled by the present Government, but there will be some important differences in conditions. On these differences a writer in the "Mail and Empire" says:

"If the successors of the former concessionaires fail, the Government can be trusted to resume possession as it did a few weeks ago. There is less likelihood that the parties of the second part to the next agreements with the Minister of Lands and Mines will fall short of their undertaking, for, unlike their predecessors, they will have to pay a

bonus for the timber rights. It may be taken for granted that persons who pay a considerable sum for a timber concession are ready to go on with its development according to contract. The bonus is one of the two new conditions added by the present Government. The other of these conditions is that restricting the timber rights of the lessee to trees of not less than eight inches in diameter across the stump, whereas, in the former agreements, the limit was made six inches.

"On each concession a pulp and paper mill must be built and equipped and maintained in operation. The mills on the Montreal River concession, the Nepigon River concession, and the Lake of the Woods concession are in each case to cost \$500,000. On the mills on the Dryden and Wabigoon concessions \$200,000 must be spent, and on those on the Rainy River concession \$100,000. Thus a total of \$1,800,000 must be expended in the construction and equipment of pulp and paper mills on the five concessions within three years from the time of the agreement. And of this total \$400,000 must be spent the first year, \$700,000 the second year, and the remaining \$700,000 the third year. The aggregate capacity of the mills required to be built is 450 tons of output per day and they must give steady employment to 825 hands. On all the wood-stumpage dues have to be paid, the rate being 40 cents a cord on spruce and 30 cents a cord on other timbers, and may be changed at the Government's pleasure.

"So much for what the lessees have to do, in addition to paying the bonus. What are their rights? Within the bounds of their concessions they may cut but three kinds of wood—spruce, poplar, and jack pine. Of these woods they must take nothing that is less than eight inches in diameter at the stump. Also, it is only along river margins, five miles in width that they can do any cutting within their respective concessions. To all this are added res-

ons in favor of settlers. Lands within the five-mile margin that have been located, sold, or occupied are not to be entered. The Government retains the right to sell, lease, locate, or otherwise dispose of any lands included in the territory. Any part of the territory that is under lumberman's license is also reserved from the lease. None of the pulp-wood cut may be exported, sold, or disposed of in any way except as raw material for the mills, which the concessionaires are bound to build and operate. The Government guarantees no particular quantity of wood. Mill refuse must on no account be deposited in the seams. The lease is to be for twenty-one years, no provision being made for renewal. If the concessionaires in any case fail to erect their mills and make the required expenditure within the given time their right to cut and their bonus will be forfeited.

The companies that were parties to these agreements had ample time in which to perform them. The Montreal River Company's agreement is dated March 3, 1902. It was not ratified until some time after that, but it is practically four years since the company obtained its concession. Had it succeeded in carrying out its part of the contract it should be now producing pulp and paper on the required large scale. Of still longer standing was the agreement with the Nepigon Pulp and Paper Company. That was entered into on April 18, 1900. A renewal was granted to the company in the early part of 1902. Nothing, however, came of the second chance, and, the time having expired a year, there was nothing for it but to cancel the concession. In April, 1909, the Keewatin Power Company's pulp-wood concession on the Lake of the Woods was ratified by the Legislature. It was to have laid out \$1,500,000 on pulp and paper mills by the spring of 1904. But it appears to have done nothing. The Rainy River and the Diden concessions were similarly not completed, and they have accordingly reverted to the Crown.

Two concessions of the same type have proved productive, namely, the Sturgeon Falls concession and the Spanish River concession. In both cases the companies built mills and are operating them. At Sturgeon Falls there are a ground wood mill, a sulphite fibre mill, and a paper mill. At Webb-wood the Spanish River Company is making pulp, not having yet built a paper mill. Neither of these concessions, however, was brought to the requisite productive stage within the period of the first agreement. An earlier concession than any of them was that of the Sault Ste. Marie Pulp and Paper Company, which went on and built great pulp mills, notwithstanding that the pulp-wood on its concession appears to have been disappointing. It has now excellent sources of raw material on the line of the Algoma Central Railway.



—Reviewing the pulp and paper situation in Norway, C. E. Sonturn, Canadian commercial agent at Christiania says:—"The exceptionally favorable conditions in the wood pulp industry have induced considerable new capital to be placed in this branch. At present there are about ten factories under building or projecting with a gathered capacity, 80,000 tons per year. What enormous progress this industry has made in Sweden appears from the following, that in 1901 there was manufactured 24,000 tons, while in 1905 the production reached 270,000 tons. The paper industry must be said to have had a favorable year. The factories have been fully engaged, and the prices have for some qualities been more advantageous than in 1904. This especially refers to sulphite cellulose paper and strong qualities of paper for packing purposes, as in this line there exists an agreement among the manufacturers. In wrapping and bag papers of sulphite and in news paper there is still a very keen competition."

LITERARY NOTES.

J. E. Defebaugh, editor of the "American Lumberman," 315 Dearborn Street, Chicago, is now preparing a work of international importance to the lumber industry, and of great value to the pulp and paper industry of this continent. Under the title of the "History of the Lumber Industry of America" the first volume has appeared, and the work will be completed in four or more volumes. With a broad conception of his work the author treats of the whole of America as one field since nature has not divided the tree lines according to the international boundary lines of the United States, Canada and Mexico. Canada, however, is specially treated in the first volume, as 23 out of 31 of the chapters of this volume of 559 pages are devoted to the forestry and lumbering of this country. Apart from this prominence given to Canada, two more chapters, dealing with the geography, tree distribution and colonization of the continent, relate to Canada and Newfoundland as part of the geographical whole. A special chapter deals with Newfoundland, and the various Provinces of Canada are separately treated in this volume except in the case of British Columbia, which will be described in one of the succeeding volumes as part of the lumber history of the Pacific coast of the continent. At an immense amount of labor the author has traced the development of forest and timber legislation, as well as trade and manufacturing in each Province, and the result is an amount of practical information exceeding anything yet laid before the Canadian public. The statistics are brought down to 1903, and in some cases to 1905 in the Canadian chapters; and the laws and regulations affecting this industry in the various Provinces are also well brought up to date. An especially interesting feature is the treatment of the subject of spruce. That variety is the prevailing growth north of the Height of Land,

that celebrated rocky uplift that divides the waters running southward into the St. Lawrence River and the lakes from those that descend into Hudson Bay. In this section, which is of vast extent, the spruce growth generally is too small to be cut into saw logs, but the author shows that the quantity of pulp-wood stumpage in the region is simply incalculable by any means now available. "To a large extent it covers the land without admixture with other kinds of timber. It is thought that the pulp spruce in this part of the Dominion will be sufficient to supply the world with paper for many generations. Comparatively little of that territory has been surveyed and much of it is unexplored. Even the latest maps of Ontario, issued by the Crown Lands Department represent the course of streams by dotted lines only, indicating that the exact course is a matter of conjecture. A few figures on the forest resources of Canada taken from this work are quoted elsewhere. Mr. Defebaugh has done his work thoroughly and conscientiously, and those interested in the timber resources of the Dominion should be deeply indebted to him for producing this cyclopædia of its wood industries.

Volume II. of "Chapters on Papermaking," by Clayton Beadle, paper chemist and lecturer on papermaking, has been issued from the press of H. G. Grattan, Borough, London Bridge, London, Eng. These notes are gathered from various lectures and from the author's observations in the paper mill and are intended to be of special benefit to young papermakers. The first chapter deals with technical education applied to papermaking, the second with prepared sizing in dry sheets, and the balance of the book of 174 pages taken up with questions and answers from the City and Guilds of London Institute examinations of 1901-2-3. A number of helpful hints will be brought out in these answers. The book is issued at 5s. net, or, say, \$1.25 Canadian money including postage.

Simkin, Marshall, Hamilton, Kent & Co., Limited, publishers, London, Eng., have issued the 1906 edition of their "Paper Mills Directory" of England, Scotland and Ireland. In addition to giving the name, street address and telegraphic address of each mill, with the number of machines operated and the class of papers made, the book contains a list of the water-marks and trade designations used by the various mills. The statistics given in the introduction to the directory show that there are in operation in England 207 mills, with 413 machines and 104 vats; in Scotland, 59 mills, with 53 machines and 110 vats, and in Ireland, 7 mills, with 11 machines. In addition to these there are 33 mills in England making boards only. Compared with the previous year the industry is practically stationary in the three Kingdoms. There was an increase of five mills making milled boards; a falling off of one in hand-made writing papers, but an increase of two in engine-made writing papers; an increase of one in news, a falling off of two in grocery paper, and a falling off of three in brown papers. This is the forty-ninth year of this publication, the price of which is 2s. 6d., say, 65 cents, including postage.



FOREST RESOURCES OF CANADA.

Notice is given in this issue of a new work on the lumber industry of America. In a review of this in the "American Lumberman" of Chicago, the following figures are given concerning the forest resources of Canada:

The forest area of Canada, not including Newfoundland and the Labrador coast, is 1,351,505 square miles, equivalent to 865,000,000 acres. Admitting that the entire area will average but 1,000 feet of grown timber an acre the total quantity would be 865,000,000,000 feet. If the long period of 100 years were allowed for the cutting of this quantity we should have an annual production of 8,650,000,000 feet or about one-quarter the present

output of lumber and timber in the United States, and an amount about 50 per cent. greater than that of the Canadian mills in lumber and timber in the several forms. But if the period of cutting should be limited to fifty years, as under intelligent forestry management it could be, the annual production would be increased to 17,300,000,000 feet without deterioration or diminution of the stand. If the estimate should be 2,000 feet to the acre of standing timber, the maximum product, on the basis of fifty years' cutting, would be nearly 35,000,000,000 feet annually—more than now produced in the United States.

Looking at the matter in another way, ignoring the territories, if the reported forested areas of Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba and British Columbia be taken, there would be found a total area of 654,553 square miles, or 418,914,000 acres. An estimate of 2,500 feet to the acre of commercial timber would give a total of 1,047,285,000,000 feet, which, on the basis of 100 years' cutting, is equivalent to the production of 10,472,850,000 feet annually, or, on the basis of fifty years' cutting, would provide over 20,000,000,000 feet annually.

These speculations are extremely general, but they serve the purpose of showing that Canada is enormously rich in timber resources, and that the possibilities of long continued cutting, especially under wise forest regulations, are almost incalculable. To the estimate of saw mill timber should, of course, be added timber which is of value in the shape of cordwood, poles, railroad ties, pulpwood and for miscellaneous uses, local and general. Altogether Canada possesses vast wealth in timber, which presents a prospect for future industry and commercial advantage that is really beyond estimate and especially startling to the contemplation in view of the increasing market in the United States and other parts of the world, with a constantly diminishing supply outside of Canada. The timber resources of the

Dominion are encouraging also to consumers in the United States, who may look to Canada for an eventual supply after our own resources shall have been depleted to the point of positive scarcity. Already the demand in the United States for Canadian lumber has surmounted the tariff wall and wholesale dealers at Chicago, Saginaw and all Lake Erie points are resorting to Georgian Bay mills for stocks as never before.

The reviewer concludes with the following opinion:—"The history of timber and lumber resources in Canada as set forth in this should appeal to the lively interest of everyone engaged in the lumber business of the United States; for on the rich resources of our northern neighbor depends much of the supply in future years for the market south of the border line. In this respect what interests Americans must be of vital importance to Canadians."



PRINTERS AND PUBLISHERS NOTES.

A British Columbia charter has been granted to the Okanagan Publishing Co., Limited; capital, \$10,000. Occupation—To carry on the business of printers and publishers, stationers, engravers, bookbinders and dealers in paper and stock, printers' materials and supplies, and all business incidental thereto.

The Standard Envelope Co., capital \$100,000, with headquarters at Perth, Ont., has been incorporated to manufacture stationery and envelopes, and to carry on the business of printers, embossers, engravers, etc. The provisional directors are Harry Walter Brick, George Hill Wheeler, Joseph Martin Lawson, and Edward Newell, all of Perth.

Canada Newspaper Syndicate, Limited, with a capital of \$20,000, headquarters in Montreal, has been incorporated to take over as a going concern the business now carried on by the commercial firm of the Canada News-

paper Syndicate. The charter members are: Max Epstein, manager; Richard Oerasch, clerk; John Taylor, manager; Joseph Arthur Girouard, student; Walter George Mitchell, advocate, all Montreal.

Douglas & Ratcliffe, Limited, paper dealers of Toronto, have decided to open a branch warehouse in Winnipeg. T. Sault Ste. Marie Pulp & Paper Co. has appointed this firm as agents for the building and wrapping papers. They have secured good premises in the Dominion Radiator Building, and Th. Gain will be manager. Mr. Gain is well known in the trade in Toronto, and has a son making a practical study of the paper industry in New England.



CANADIAN TARIFF COMMISSION

When the Canadian Tariff Commission sat at St. John, N.B., G. W. Brown representing the D. F. Brown Paper and Paper Box Company, appeared to make representations. He thought that the dumping clause should be applied to stiff candy boxes coming in from the United States. The different designs on different tops change from season to season. Last year's goods are sold in Canada at a very, very much lower price than this season's goods would be, consequently he thought those goods which come in should be watched in some way so that they would come in under the dumping clause. He understood that it had escaped the dumping clause now.

Hon. Mr. Fielding said the fact that they were last season's goods might lead to their being sold lower in the United States as well as in Canada.

In reply to a question Mr. Brown said the one-process board is not made in Canada; that is, in a folding-box board. The two-process board was made in Canada, and he wanted such boxes to come out. Those goods are coming here selling at lower prices than we could make the stock for—I would not

ber, but practically as low as we can import the stock for.

Would the confectioners and grocers join in your application?

I suppose they want to buy them as cheaply as they can buy them. If they can get them from Brown as cheap as they can land them from the States and Brown makes them without profit, all right. That is the way they generally look at those things. I should think if the duty of so much a pound was put on folding boxes it would keep them out. Folding boxes are more easily shipped on account of them lying down flat.

In reply to questions Mr. Brown said he wanted a combined specific and ad valorem duty on these boxes, which are sold to the manufacturing candy

trade and to the candy packing trade. The price ranged from \$5 to \$10 a thousand. "We ought to keep them out," said Mr. Brown, "because we can manufacture them just as cheaply, if we could buy our board in Canada as cheap, if we had a quantity to make. Of course, what I had reference to is particularly certain lines of stock boxes; for instance, a currant box or raisin box, manufactured for California trade. They are printed by the million. Our people are not using them by the million; consequently they might run them through a second time, a certain number—200,000, say—and send them in here at the same rate as they are manufacturing by the million for California. They are probably lithographed in three or four colors, and then this additional printing run through.



Esparto Pulp By Bacteriological Fermentation.

The process for obtaining esparto pulp by a cold method without the use of caustic soda has been recently patented. The object of the method is to utilize the enormous quantities of esparto available in Spain, Morocco, Oran, and Tunis, and to obtain the fibre on the spot, thereby economizing freight, as esparto contains 50 per cent. of valuable substances. The process is also adapted to enable the pulp to be obtained more cheaply. The composition of esparto is usually as follows:—Chemically its constituents are mainly pectocellulose and ligno-cellulose. Spanish esparto is somewhat richer in cellulose, containing 48.25 per cent., as compared with 45.80 per cent. (the usual amount), and is consequently dearer than the African variety. The process for obtaining fibre requires two distinct operations, one chemical, the other mechanical. The first is preceded by a preliminary treatment, which consists in passing the raw product through a washing machine so that the baths sub-

sequently employed may better penetrate the substance. The machine used consists of two ribbed rolls, held in contact by springs mounted on their shafts, and the rolls are enclosed in a casing, the esparto being fed in at one end thereof and delivered crushed at the other. A bent pipe supplies a blast of air to the interior of the casing, and by this means the greater part of the dust created is ejected through a third opening therein. The crushed material is next placed in large tanks, into which it is pressed and moved about as much as possible. The tanks are filled with any kind of water, even brackish or sea water being used, and then inoculated with a special kind of bacillus obtained from esparto. These bacteria have not yet been scientifically examined and identified, but are obtained as follows:—Spanish esparto is softened for several days in water and the liquid drawn off. Gelatine tubes are then inoculated with a small quantity of this liquid. After a few days numerous different colonies of

bacteria are formed, which are carefully examined with the aid of the microscope till a variety is found which has the form of small, very short rods with rounded ends and the colonies of which are of a greyish white color. This bacillus is then isolated and grown in salted peptonised meat broth at a temperature of 35° C. To start the fermentation process in the esparto tanks, a large culture is first introduced into a trough containing preferably sea-water. After 48 hours the bacteria will have multiplied sufficiently to be of use. These bacteria possess the power of converting the other substances in the esparto, but not the cellulose, into a slimy mass. Twenty-four hours after inoculation the fermentation, which is accompanied by a copious evolution of gas, is in full swing, and is completed in about 11 days. The mass is then washed with lime water, whereby the pectin compounds are precipitated as insoluble lime salts, which can be easily removed. The chemically treated esparto is then spread out in the air to dry, pressed into bales and shipped, and in this condition does not suffer any deleterious change for a considerable time. This process is particularly suitable for converting esparto into half-stuff on the spot, which may be brought into commerce in sheet form similar to wood pulp. A modification of the process is to allow the fermentation to take place in heaps of the esparto, which are inoculated with the bacteria, and afterwards sprinkled with an alkaline solution. A special method of washing the pulp is employed in order not to lose any of the fine fibre. The apparatus used consists of a cylindrical vessel with a conical lower portion provided with a tap, whereby water is admitted to the apparatus up to a certain level. The wash water thus admitted from below stirs up and thoroughly cleanses the suspended fibre. When the water has reached a certain level, the supply tap is closed, and the fibre allowed to settle. The impurities remain suspended in the

water and are removed together with the wash water by a second tap. In connection with this tap is a pivoted floating pipe which syphons off the wash water without stirring up the suspended fibre. A stop prevents the floating pipe from sinking below a certain depth, thus avoiding any disturbance of the deposited fibre, which when sufficiently washed is removed from the apparatus through a suitable opening. Two or three washings will, as a rule, be found sufficient. The pulp may be bleached in the usual way with chloride of lime or sodium hypochlorite, but the following method is recommended by the patentees:—The washed pulp is brought into a mixing machine, and mixed with 5 per cent soda. After several hours' agitation, alkali carbonate is neutralized with acid such as sulphurous acid, a slight excess of acid being added. After further agitation the pulp is washed, and after being bleached with sodium hypochlorite mixed with an alkaline carbonate yields an excellent white and clean product.



SULPHUR VS. PYRITES.

By Herman Frasch, President of
Union Sulphur Co., New York.

The large amount of brimstone consumed in the sulphite pulp industry makes crude sulphur a very important factor for the sulphite manufacturer. Because he must have it in order to manufacture at all; and (2) it should be as cheap as possible.

Until within the last five years, practically all the sulphur of the world came from Sicily and the Sicilians had a complete monopoly of the business. It rose or fell according to existing competing combinations, as the case might be. Within the last five years the consumption of sulphur has increased to such an extent that the output of Sicily would not have been sufficient to supply the world demand, and if it were not for the

of the Union Sulphur Co., which furnished American sulphur, the price of brimstone would at present be very high indeed, with no visible stocks available. American brimstone has forced its way to the front, however, and from a small beginning, enormous quantities are now being produced and shipped, and not only does the American production to-day exceed the consumption of the United States, but Sulphur Mine, La., is capable of supplying the requirements of the world. This ensures uniform, and, very likely, lower prices for sulphur in the future, and assures the sulphite manufacturer of uniformity of supply. At different periods in the past, the price of sulphur has been raised artificially to such a degree as to make it desirable for the pulp manufacturer to find a substitute for brimstone, and the cheaper pyrites would naturally be the material employed.

A number of European concerns use pyrites, some wholly, others in part. In Sweden, also, where pyrites can be obtained locally, near the mills, some pyrites have been introduced. The chief reason for this is that Sweden has very high freight rates from Sicily, and many Swedish manufacturers use refined distilled sulphur in their sulphur burners, so that the brimstone which they employ is much higher in price than that available in this country. But several manufacturers, especially those who have changed to a small portion of their plant to use pyrites, have told the writer that a number of peculiarities in the use of pyrites become apparent only after the change from sulphur to pyrites has been made.

The most important of these is the fact that the air which is drawn into the pyrites furnace is deprived of a portion of its oxygen because of the oxidation of the iron in the pyrites, whereby only a portion of the oxygen in the air is left available for the oxidation of the sulphur, and as a consequence the inert nitrogen in the air is deprived of its oxygen by the cinders, and tends to dilute the gases, so that lower sulphur dioxide contents will result. This

means that the same pumps and the same digesters will have to be operated with weaker material, which will turn out less pulp in the same length of time than if a sulphur furnace had been employed.

In American works pyrites have not been able to obtain a foothold because pyrites consists chiefly of 50 per cent. iron and 50 per cent. of sulphur. The great distance at which sulphite mills are scattered—often a great distance from the seaboard—and the cost of transportation and handling of a material containing 50 per cent. of useless cinders, make the use of pyrites not very enticing. Sometimes copper containing pyrites is used, and in that case the return of the burned cinders to the smelters becomes necessary. Smelters are generally a great distance away from the pulp mills, and the freight becomes so high that no saving can be accomplished.

Another serious objection to the pyrites burned gases is that the red-hot cinders have catalitic action, and convert a portion of the sulphur dioxide into sulphuric acid or sulphuric anhydride. Whatever sulphuric acid is formed represents a loss in sulphur.

Further, if great care is not exercised in regulating the feeding and discharge of the furnaces, the sulphur in the residual cinders may run quite high, the writer having seen a cinder analysis of a paper mill in Sweden in which the sulphur contents amounted to 7 per cent. When the air admission is not perfectly regulated, the amount of sulphuric acid which may be formed in the pyrites burners varies greatly, so that the absence of perfect regulation in a pyrites burner may cause a large loss of sulphur on this account, as well as because the sulphur is left unconsumed in the cinders. The same plant which operates on a 12 per cent. sulphur dioxide containing gas can produce more solution of greater strength if a 17 per cent., containing gas is used; in fact, this also holds as far as the capacity of the digesters is concerned.

The fine dust emanating from the pyrites burners has been proven to be

the cause of paper pulp going back in color. The yellowish tint in the injured pulp becomes visible sometimes even after it has been made into paper. A careful exclusion of this fine pyrites dust is a very serious matter, and constitutes one of the chief objections to the use of pyrites.

It has been demonstrated that a sulphite plant will lose in capacity of output if changed from sulphur to pyrites, unless the capacity of the gas pumps and digesters is increased when the pyrites ovens are introduced. The amount of space occupied by a pyrites furnace is also very much greater, and the installation much more expensive when compared with the sulphur furnace. In the handling of the pyrites and the removal of the cinders a great deal of labor is involved, which is not as apparent in a country where labor costs less than one-third of what we pay in this country.

On the other hand, the labor and attention necessary for a modern sulphur furnace which will furnish a high-grade gas at all times without skilled handling is so small that it cannot be compared with the cost of operating a pyrites burner. Further, the cost of maintenance of a pyrites burner plant is quite high, while the best rotary sulphur furnace will last for years without deterioration.

When the high cost of installation, maintenance, possible loss in sulphuric acid and cinders, together with the high cost of labor and the necessity of a closely-watched pyrites furnace is compared with the automatic sulphur burner of today, the question of the cost of sulphur disappears entirely.

The general brimstone situation of today is so much more secure as far as supply and prices are concerned—the monopoly of Sicily having been completely broken with the advent of American sulphur—that I can clearly see that it will be much more advantageous to the sulphite pulp manufacturers to install the modern sulphur burner than to attempt to change to pyrites.

—J. S. Larke, Canadian Government agent for New South Wales, Queensland and New Zealand, with headquarters Sydney, writes:—"The Australasian paper market has been dealt with in previous reports in detail. It is sufficient here to state that the consumption of printing paper in Australia and New Zealand is about one hundred thousand tons per annum. Advantaged by a preferential tariff, Canadian paper is making some headway in New Zealand, but is not making similar progress in Australia. The character of the trade is changing. The large newspaper offices formerly to the risks of delivery, and in order to meet the exigencies of transmission, they carried heavy stocks. Now the large paper firms of Great Britain and the United States are guaranteeing deliveries to the extent of carrying a reserve stock, if circumstances appear to demand it, in Australia. It is, therefore, difficult to open contracts of the old character. Canadian mills who quote only the price at the mill door and will take no responsibility for deliveries, can hardly expect to secure orders. It is worth the consideration of Canadian paper mills, a number of them, whether they cannot be advantaged by having one selling agent. In this way, if, through any circumstance a mill was not able to furnish its quota, the others could be drawn upon, and the regularity of supplies maintained. This would meet one of the demands of the market."



—The publisher of the "Pulp and Paper Magazine" is now preparing a directory of the pulp and paper industry of Canada. This will be issued as a continuation of the Canadian Textile Directory and will include the pulp and paper mills in actual existence and in course of construction, and will include also a directory of the wholesale paper dealers, stationers, book-binders, etc. It will be the first work of its kind in Canada. The price will be \$2 per copy. Information for advertisements may be had on application to this office.

Mill Matters

A roofing paper mill of South Bend, Ind., will erect a Canadian branch factory in Brantford, Ont., having a capacity of about ten tons of roofing per day.

The Metabechouan Pulp Company has been purchased by a syndicate of Quebecers. The new syndicate proposes to enlarge and improve the plant. It is understood that the Toronto Paper Co. will add a dry loft to their mill, and will make loft dried papers, of which a considerable amount is now imported.

The proposition made by some promoters on behalf of the projected Etanmia Paper Co. to establish works at Port Hope, Ont., appears to have been thrown through.

The Cushing Sulphite Fibre Co., of St. John, is still in litigation. An appeal by the Eastern Trust Co., from the order of the judge in equity, is being heard before the Supreme Court at Fredericton.

42-inch Sand Blow-Off for 7-foot Pestock, designed by Ross & Holgate, engineers, Montreal, and built by the Jenckes Machine Co., Limited, of Sherbrooke, Que., was recently shipped to the West India Electric Co., Kingston, Jamaica.

A firm well and favorably known to the paper trade throughout the United States and Canada is J. H. Horne & Sons Co. of Lawrence, Massachusetts. The business was established in 1864 by the late J. H. Horne, and has steadily grown to its present large dimensions. They build paper machines of every description, and for all grades of work including Fourdrinier, cylinder, and wet machines. Their high grade Fourdrinier machine designed for fast running, and built from heavy patterns, has met with unusual success. The firm's announcement appears in this issue. They are especially prepared to cater to the Canadian trade, and can fill orders promptly. Their illustrated catalogue will gladly be furnished to any applicant.

Andre Cushing & Co.'s pulp and paper mill at Fairville, St. John, N.B., has closed down temporarily.

It appears that the railways of Canada and Mexico are taking an increasing share of the freight traffic now held by United States roads, and at a meeting of the trunk lines at New York on the 6th inst., it was decided to make some radical cuts in freight rates. Wood pulp is included in the items which will be lowered by this decision.

The annual meeting of the Canada Paper Company was held last month in Montreal, when the following directors were elected for the ensuing year:—President, Sir Montagu Allan; vice-president, H. S. Holt; Hugh A. Allan, Bryce J. Allan, C. R. Hosmer, the Hon. Robert Mackay, and H. Markland Molson. F. J. Campbell was reappointed general manager, and H. M. Thorne, secretary-treasurer. A satisfactory business for the past year was reported.

J. R. Booth, Ottawa, has placed an order with the Jenckes Machine Co., Limited, of Sherbrooke, Que., for a water wheel plant to run his new paper mill. The plant will consist of a pair of 48-inch special graduating gate type Crocker turbines to develop 875 horse-power under twenty feet head, running at 155 revolutions per minute. The turbines will be mounted on a cast iron draft chest, set in concrete flume. The same company is also building two Port Henry pulp grinders in addition to seven already furnished Mr. Booth.

A short time ago the Chicoutimi Town Council gave a contract for a bridge over the Chicoutimi River for workmen to cross to the mill of the Chicoutimi Pulp Company without walking half a mile. For reasons not given the Chicoutimi Pulp Company object to this bridge, and have started an action for \$50,000 damages against the town, claiming that the bridge is built on their property on one side of the river, and that they have a water-power at the same spot. It is contended on behalf of the town that even if the bridge is on their property the water-

power claim is void, as the company only own one side of the river. When the action was read in the council meeting on the 2nd inst., it was resolved that the necessary steps be taken to defend the case. Immediately after this motion was passed it was proposed by Mr. Belley that the Chicoutimi Pulp Company, having laid an electric tramway through five streets of the town without permission, which electric tramway, was a public nuisance, the town solicitor be instructed to take steps to have the electric tramway taken from the town property without delay. The electric tramway in question is for the purpose of bringing down the pulp from the mill of the company to the wharf, which Mr. Price, of the firm of Price Brothers & Co., Ltd., claims as his property, his action against the Chicoutimi Pulp Company having been heard in the courts of last year, but judgment not yet having been delivered.



TRADE ENQUIRIES.

The following enquiries relating to Canadian trade have been received at Ottawa. The names of the firms making these enquiries can be obtained upon application to: "Superintendent of Commercial Agencies, the Department of Trade and Commerce, Ottawa." Quote the reference number when requesting addresses.

1068. A Leith manufacturers' agent can offer considerable business to Canadian manufacturers of wood pulp, and would be pleased to hear from those interested.

1102. Enquiry has been made for the addresses of Canadian manufacturers of cardboard partitions for egg cases; size about one foot square with spaces for thirty-six.

1109 A Manchester firm of machinery importers desires to correspond with Canadian manufacturers of machine

tools, valves, pipe fittings, and paper mill machinery.

1112. A Manchester firm dealing in straw boards and wood pulp boards desires prices from Canadian exporters of same.

1116. A South African firm of commission agents desire to represent a Canadian manufacturer of wood pulp and meal. Send samples and quotations c.i.f. Capetown and Delagoa Bay.

1124. Enquiry is made for Canadian manufacturers of indurated fibre or papier mache.



PERSONAL.

John R. Barber, of the Georgetown paper mills, after a business trip to Hokke, has been spending a few days Clifton Springs, N.Y.

A. A. Briggs, for nineteen years superintendent of the Canada Paper Co., resigned to go as superintendent of Kinleith Paper Co., to St. Catharines. Mr. Briggs has been succeeded by Grozier, who has had a wide experience as manager of paper mills in Scotland, India, and other parts of the world.

W. J. Gage, president of W. J. Gage & Company, Limited, wholesale bookseller and stationery, and also president of the Kinleith Paper Co., Limited, of St. Catharines, has been elected president of the new Sterling Bank. Mr. Gage was one of the chief promoters of the Hospital for Consumptives in Muskoka, of whose Board of Management he is chairman.

E. R. Vickery, for seven years manager of the Dominion Pulp Co., at Chatham, N.B., has resigned, and is going to England within a month. He will be succeeded by R. B. Horton, his assistant for the past year. The mill is not running owing to the destruction of the acid last January, but repairs are being pushed, and it is hoped operation will be resumed in May.



Province of Quebec.

Department of Lands and Woods and Forests

FORESTS

Quebec, 24th March, 1906.

Notice is hereby given that, conform-
ably to sections 1334, 1335 and 1336 of
the consolidated statutes of the Pro-
vince of Quebec, the timber limits here-
inafter mentioned, at their estimated
value more or less, and in their present
state, will be offered for sale at public
auction, in the Department of Lands
and Forests, in this city, on THURS-
DAY, 21st day of June next, at TEN
o'clock in the forenoon.

UPPER OTTAWA.

Block A.

Range 2.—10, 50 m.; 11, 50 m.

Range 3.—11, 50 m.; 13, 25 m.; 17,
1; 18, 35 m.; 19, 27½ m.; 20, 22 m.

Range 4.—10 to 14, 50 m. each; N. ½
1, 25 m.; north part of N. ½ of 16,
54 m.; S. ½ of 17, 25 m.; 18, 50 m.;
19, 50 m.; N. ½ of 20, 24¾ m.; S. ½ of
20, 1½ m.

Range 5.—13 to 23, 50 m. each.

Range 6.—N. ½ of 10, 25 m.; N. ½ of
11, 2 m.; 13 to 16 and 20 to 23, 50 m.

Range 7.—N. ½ and S. ½ of 6 to 13,
50 m. each.

Range 8.—N. ½ and S. ½ of 6 to 13,
50 m. each.

River du Lièvre, N.W. branch, Nos.
1 to 8, 50 m. each.

River du Lièvre, middle branch, No. 7,
40 m.; No. 8, 30 m.; No. 9, 65 m.

Upper Gatineau, 1, 2 and 3, 45 m. each;
4 and 5, 50 m. each; 6, 42 m.; 7, 8 and 9,
25 m. each; 10, 50 m.; 11, 35 m.; 12 to 20,
50 m. each; 21, 70 m.; 22 to 30, 50 m.
each; 31, 60 m.; 32 to 37, 50 m. each.

SAINT MAURICE.

Manouan 8, south, 30 m.; 9, north, 21
m.; Upper Saint Maurice, 15, 60 m.; 16,
38 m.; 28, 62 m.; 29, 35 m.; 30, 30 m.;
31 and 35 to 43, 50 m. each; 44, 49 m.;
45 to 66, 50 m. each.

SAINT CHARLES.

River du Moulin, 4, 12 m.; rivers aux
Écorces and au Canot, 39 m.; river aux
Écorces, 5, 29 m.; 6, 41½ m.; river au
Canot, 1, 26 m.; Grande Pikauba, 2, 38½
m.; 3, 38¾ m.

LAKE SAINT JOHN WEST.

Township Dablon, ranges 2, 3 and 4,
2½ m.; township Déchène, 18 m.

LAKE SAINT JOHN EAST.

Township Kenogami, No. 2, 2 m.

(Continued on Next Page.)

SAGUENAY.

River Malbaie, No. 17, 37 m.; township Callieres, 14 m.; rear township Callieres, 18 m.; Saguenay West, 1a, 10 m.; part of Saguenay, 3 and 4 west, 49 m.; Bergeronnes, 1 east, 25 m.; river Sainte Marguerite, No. 87, 24¼ m.

River Manicouagan: 8, 9, 13 to 28, each 50 m.

River aux Outardes: 2, 49 m.; 3, 45 m.; 4, 63 m.; 5, 50 m.; 6, 70 m.; 7 to 13, each 50 m.

Sault au Cochon: 1 east, 30 m.; 2 east, 36 m.; 3 east, 41 m.; 4 east, 33 m.; 4a east, 39 m.; 5 east, 40 m.; 5a east, 39 m.; 6 east, 60 m.; 7 east, 55 m.; 8 east, 46 m.; 9 east, 65 m.; 10 east, 68 m.; 2 west, 55 m.; 3 west, 50 m.; 4 west, 33 m.; 5 west, 38 m.; 6 west, 60 m.; 7 west, 64 m.

River Magpie: A, 52 m.; B, 42 m.

River Natashquan: 1 to 4, each 50 m.

River Piashte Bay: 1 to 8, each 25 m.

River Saint Augustin: 1 to 8, each 25 m.

GRANDVILLE.

Township Bégon, No. 14, 2½ m.

SAINT LAURENT DE MATA-
PEDIA.

Township Assemetquagan, 63 m.; township Restigouches, river ranges 1 and 2, 1½ m.

RIMOUSKI EAST.

River Cap Chat, 1, 47½ m.; 2, 45 m.; 3, 45 m.; river Matane A, 48 m.

BONAVENTURE WEST.

Township Carleton, ranges 5 and 6, 3½ m.

GASPE WEST.

River Sainte Anne: D, 48 m.; E, 43¼ m.

GASPE EAST.

Grande rivière: T, 39 m.

GASPE CENTRE.

River Saint John: N, 37½ m.; C, 42 m.; P, 33 m.; Q, 28½ m.

CONDITIONS OF SALE.

No limit will be adjudged at less than the minimum price fixed by the department.

The limits will be adjudged to the highest bidder on payment of the purchase price, in cash or by cheque accepted by a duly incorporated bank.

Failing payment, they will be immediately re-offered for sale.

The annual ground rent of three dollars per mile is also payable immediately.

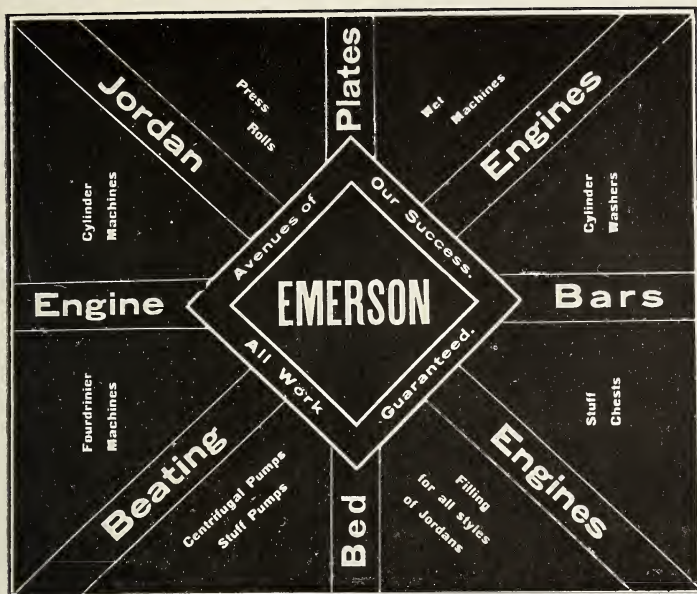
Those timber limits, when adjudged will be subject to the provisions of timber regulations now in force which may be enacted hereafter.

Plans of limits offered for sale opened for inspection in the Department of Lands and Forests, in this city, at the office of the Crown lands and branches agents in the different agencies in which said limits are situated, up to the day of sale.

N.B.—No account for publication of this notice will be recognized if publication has not been expressly authorized to the department.

ADELARD TURGEON
Minister of Lands and Forests

EMERSON MFG. CO.



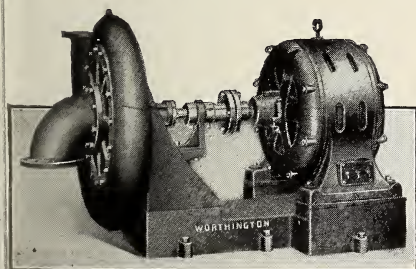
LAWRENCE, = = = MASS.^F

Worthington Turbine Pumps,

Single or Multi-Stage.

For all heads and capacities.

Specially adapted for pulp mill use.



Worthington Turbine Pumps have no guards, no springs, no valves, no rubbing surfaces, no reciprocating parts.

ohn McDougall Caledonian Iron Works Co., Limited, Montreal.

BUILDERS FOR CANADA.

This page is reserved for the

DILLON MACHINE CO.

LAWRENCE - - - MASS.

Builders of Beating and Washing Engines,
Refining Engines, Stuff Pumps, Wet Machines,
Paper Cutters, Dillon Patent Calender
Doctors and Feeds, etc.

Miramichi Pulp & Paper Co., Limited

Chatham, N.B.

Manufacturers of High Grade Easy Bleaching

SULPHITE PULP

Suitable for Writing and Book Papers

LOMBARD & CO.

MANUFACTURERS AND IMPORTERS OF

Pulp Stones and Grindstones

OF EVERY DESCRIPTION.

**QUARRIES at NOVA SCOTIA, CLIFTON, BAY DE CHALEUR, NEW
BRUNSWICK, under our own management.**

OFFICE AND YARD:

236 and 238 A St., Boston, Mass., U.S.A.

**WE ARE THE ONLY MANUFACTURERS MAKING A SPECIALTY OF
HAND-FINISHED GRINDSTONES.**

Specially Selected GRIT for Paper Knife Grinding.
SPECIAL SIZES CUT TO ORDER

The Genuine English Newcastle Stone UNEQUALED BY
ANY OTHER STONE
MANUFACTURED.

FOR WOOD PULP GRINDING.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,
Ejector Vacuum Pumps — Bertrams Limited — Patent.

DR. C. WURSTER'S Patented Pulping Machines & Kneaders

OVER 200 SOLD

LARGE PATTERN — Four Sizes.

PULPING-UP 3, 6 and 9 and 12 tons of Dry Papers or Pulp in
24 hours.

POWER—5 h.p., 8 h.p., 12 h.p. and 15 h.p.

SMALLER PATTERN—For Sorted Papers only.

PULPING-UP 2 to 3 tons of Dry Paper in 24 hours. 2 to 4 h.p.
Built in Iron.

For Better Quality Papers, Trough and Propellers made of Brass

Special Machines for Unsorted Paper.

These Machines do not Grind, Cut-up, or Wet the Fibres, and as the State of Beating and Refining is Unaltered, neither Color nor Sizing being Affected, and Impurities not touched, "BROKE" can be Re-used for the Same Quality of Paper again.

FOR PARTICULARS APPLY TO

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.
ENGLAND.

The Toronto paper dealers have signed an agreement to charge 1 cent per pound over wholesale prices on orders of less than one ream. In case of cardboard the extra charge is 10 per cent.



TENDERS FOR Pulpwood Concessions.

Tenders will be received by the undersigned up to and including the 18th day of April next, for the right to cut pulpwood on certain areas tributary to the Montreal River, in the District of Nipissing, the Nepigon River in the District of Thunder Bay, the Rainy Lake, the Wabigoon River and the Lake of the Woods, all in the District of Rainy River. Tenderers should state the amount they are prepared to pay as bonus in addition to such dues as may be fixed from time to time for the right to operate a pulp or pulp and paper industry on the areas referred to. Successful tenderers will be required to erect mills on the territories and to manufacture the wood into pulp in the Province of Ontario.

Parties making tenders will be required to deposit with their tender a marked cheque, payable to the Treasurer of Ontario, for 10% of the amount of their tender, to be forfeited in the event of their not entering into agreements to carry out conditions, etc. The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital required to be invested, etc., apply to the undersigned.

HON. F. COCHRANE,

Minister of Lands and Mines,
TORONTO, ONT.

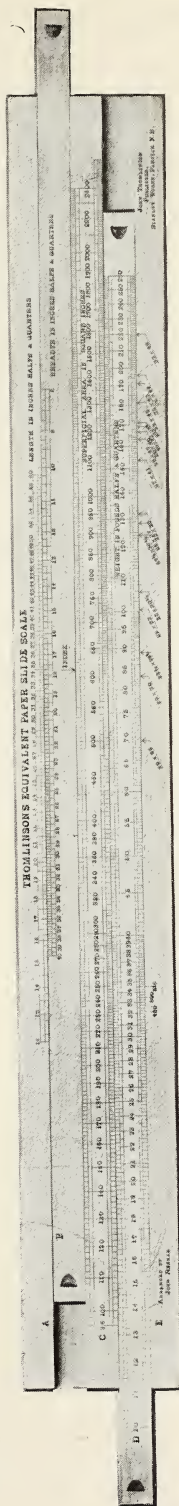
NOTICE

The time for receiving "Tenders for Pulpwood Concessions," above announced has been extended to 18th May, 1906.

Machinery For Sale.

FOR SALE—Two new Black Clawson Jordan Engines. Inlet 5 in., outlets 4 in., cone ft. wide, 4 ft. long. Length over all 14 ft. 8 in. Double bearings on driving end. Apply Box 11, Pulp and Paper Magazine, Toronto, Canada.

YOU NEED IT



For further particulars see the

RITCHIE & RAMSAY, Limited, - 84 WELLINGTON STREET WEST, TORONTO, CANADA.

THE PULP-WOOD CONCESSIONS.

Extension of Time.

The Ontario Department of Lands and Mines has extended to May 18th the time for receiving tenders for the pulp-wood concessions in the Rainy River and Nipissing districts. A number of responsible parties have urged that they have been unable to complete expert investigation of the areas, and have suggested a time extension. Believing that the public interests will be best served by doing so, the Department has acted as stated.



CHEMICAL MARKETS.

In the New York market good sales are reported of China clay at \$12 to \$12.50 ex dock for imported, and \$7.50 for domestic, delivered. Talc sells in car lots

at \$20 to \$50 or more for Italian, and \$12 to \$30 for domestic, delivered. Rosin is slow of sale on reports of decline at Savannah. Large orders booked for alkali at 75 cents for light, and 80 cents for dense, in bulk. Bleaching powder quiet. Orders for April are placed on basis of \$1.25 for domestic or foreign Caustic soda at 2½ to 3 cents, according to quality. Brimstone is steady at last quotations.



United States Attorney Charles H. Brown, has taken proceedings to confiscate three car loads of rags shipped by Helpert Bros., of Toronto, to M. Shapiro, Buffalo. It is alleged that the rags are woolen rags, on which there is a duty of 10 cents a pound, but they were shipped as all cotton or paper stock, on which no duty is charged. The Government would have been defrauded out of \$612 duty had the rags been admitted at the rate they were billed.

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders,
Pumps, Heaters.

F. H. DAVIS & CO.,
161 Devonshire St.,
BOSTON, - - MASS.

RAG AND PAPER STOCK MARKETS.

Montreal, 14th April, 1906.

The increased deliveries of rags and paper stock that occur with the opening of spring and mild weather, is affecting the paper stock market, the supply being rather in excess of demand.

This applies particularly to all classes of waste paper, which at present are slow to sell.

There is a continued demand for satinete, and roofing-paper stock, but no further advance in price, since our quotations of last month. Considerable importations of this stock are to arrive by early steamers from Europe, which are likely to affect prices in the local market.

Manila rope is still very scarce, and available lots are quickly bought up at steadily advancing prices. Bagging is also scarce, and the price is again higher.

No. 1 white shirt cuttings.....	\$5.50 to \$6.00
Light print cuttings.....	4.00 to 4.50
Unbleached cuttings	4.75 to 5.25
White shoe clips.....	4.50 to 5.00
Colored shoe clips.....	3.25 to 3.75
Domestic white rags.....	2.25 to 2.50
Bales and thirds.....	1.25 to 1.40

C. D'Oyley Mears & Co.,

PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
Wardrobe Chambers, Queen Victoria Street,
London, E.C.

Roofing stock .....	.90 to 1.25
Waste papers .....	.35 to .40
Manila rope	3.25 to 3.50
Bagging	1.00 to 1.10

AS A WORKING TOOL

for the student and the writer, as an authoritative reference book for schools, teachers, families, business and professional men, there is one book which offers superior advantages in the solid value of its information, and the ease with which it is obtained.

One's admiration for Webster's International Dictionary increases daily as it comes to be better known. It never refuses the information sought and it never overwhelms one with a mass of misinformation illogically arranged.

The St. James Gazette of London, England, says: For the teacher, the pupil, the student and the literateur, there is nothing better; it covers everything.

The New and Enlarged Edition recently issued has 25,000 new words, a revised Biographical Dictionary and a revised Gazetteer of the World, 2380 pages and 5000 illustrations. It has just received

THE GRAND PRIZE

(Highest Award) at the World's Fair, St. Louis.

Our name is on the copyright page of all authentic Webster's dictionaries.

FREE—"A Test in Pronunciation," instructive and entertaining for the whole family. Also illustrated pamphlet.

G. & C. MERRIAM CO.,

PUBLISHERS,
SPRINGFIELD, MASS



THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, - - - - 82 Beaver Street, New York.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway) ..	Kirkegaden No. 20.
GOTHENBURG (Sweden) ..	Lilla Kyrkogatan No. 20.
MANCHESTER	Guardian Buildings (opposite Exchange).
LONDON	77a Queen Victoria Street, E.C.
PARIS	Rue de Londres No. 29.
ANGOULEME (France) ..	43 Rue Louis Desbrandes.
LYONS	54, Cours Gambetta.
MILAN	24 Via Solferino
TOLOSA (Spain)	18 Calle San Francisco.
NEW YORK	99 Nassau Street.
ST. PETERSBURG	Little Podjascheskaja House, 4. Qu. 16.

Telegraphic Address :

"WERTHEIMO, HAMBURG."

**BARKER,
CHIPPER,
PAPER-CUTTER**

MACHINE KNIVES
Of Every Description.

The Peter Hay Knife Co., Limited, Calt, Ont.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.
DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.



JOHN KNIGHT & CO.,

CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents
for the ...

L.G.V., W.F.,



and other
Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any
artificial tinting.

For Coating. Bleaching or Fine Papers it is unsurpassed.

PULP AND PAPER MARKETS.

Toronto, 14th April.

During the past month the paper mills have been busy in almost every line, and although prices are firm in consequence there has been no serious attempt to make an advance. There is a large demand for news, which is quoted at \$2 for roll, and \$2.50 to \$2.75 for bundled. Prices of manila range from \$2.30 for bogus, to \$3.50 for No. 1, books 4½ to 5 cents per pound, coated 7 to 9 cents per pound, and writings 9 to 10 cents.

The pulp situation is on the whole better in Canada than in the United States. In the Province of Quebec conditions for getting out pulpwood have proved better than was feared a month or more ago, and quantities of logs that were tied up last season have been floated down since. As an offset to this a proportion of logs intended for pulp are being turned into lumber

owing to the great demand in the lumber market. The quantity got out by farmers off their own land will be as large as ever. The water conditions are good at the mills, and the demand also is good. Prices are about the same as last month, say \$12 to \$14 f.o.b., or \$17 to \$20 delivered for ground wood, and \$37 to \$42 for sulphite.

Reports from New York appear to indicate higher prices.

The Scandinavians, writes the Christiania correspondent, of the "World's Paper Trade Review," now admit that the market for mechanical is very weak. This is accounted for by the comparative large production during the winter months owing to the absence of severe weather.



Edward Trout, secretary-treasurer of the Toronto Paper Co., is expected home from Florida in May.

STUFF PUMP

This pump is made in three sizes, 5", 6" and 8".

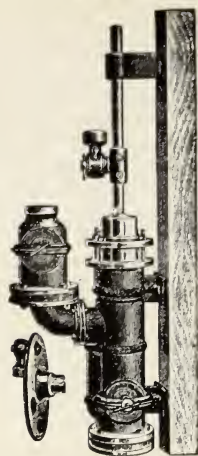
The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by

T. McOUAT & SON, Lachute, Que.,



MAPLE LEAF
STITCHED COTTON DUCK
BELTING
DOMINION BELTING CO. LTD.
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of

GRADED RAGS, PAPER STOCK
ROPE BAGGING, ETC.

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction Board
Mills at Sault au Recollet, P.Q.

ATTERBURY BROTHERS, Incorporated.
Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

SCREENS

STEEL WIRE

PERFORATED STEEL

For Contractors' and Every Other Use

WRITE FOR SPECIAL CATALOGUE

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT.

MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.

BELOIT IRON WORKS,

BELOIT, WIS., U. S. A.



ENLARGED FACILITIES

Our new plant at St Catharines is now ready to turn out Boilers. With a view to rapid and economical production, no expense has been spared in equipping the new plant, which is modern and complete in every particular. We are consequently in a position to handle a greatly increased volume of Boiler business and to handle it with despatch.

You are particularly requested to send us your Boiler enquiries.

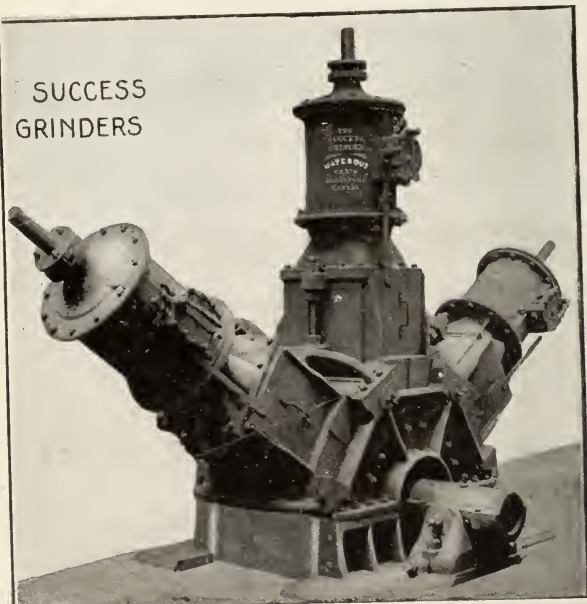
SALES OFFICES
TORONTO
ROSSLAND
HALIFAX
VANCOUVER

THE JENCKES MACHINE Co., LIMITED,

EXECUTIVE OFFICE
60 Lansdowne St., Sherbrooke, Que.

PLANTS: Sherbrooke, Que.
St. Catharines, Ont.

SUCCESS
GRINDERS



"SUCCESS" GRINDERS

We Manufacture a Full
Line of

Pulp Mill Machinery

We repair and
make over
Cylinder Mould

Write for Special
Catalogs.

The Waterous Engine Works Co., Limited

BRANTFORD, - CANADA.

CHALK WHITE" COATED BOOK PAPER.

the best and whitest coated paper sold. — All regular sizes and weights in stock. The Cover is our Art Litho Cover, stocked in four sizes, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO. LIMITED

Windsor Mills, Que. - Montreal. - Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

S. YOUNG, - - Sole Agent for Canada.

413 St. Paul Street, Montreal.

F

"TURBINE WATER WHEELS"

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from
S. MORGAN SMITH Co.,
YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company,	14,000 h.p.
Montreal Cotton Company,	7,000 h.p.
Sturgeon Falls Pulp Co.....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England.

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

Wallace—Jaastad—Drewsen

ASSOCIATED INDUSTRIAL ENGINEERS AND CHEMISTS

JOSEPH H. WALLACE, C.E.,
M. Am. Soc. C.E., M. Can. Soc. C.E.

A. U. JAASTAD, M.E.,
Steam Engineer.

VIGGO DREWSEN, Ph. D.
Industrial Chemist.

Pulp and Paper Mills, Power Developments, Reports, Consultation.

OFFICES AND LABORATORIES—Temple Court Bldg., New York.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland,

=

=

Montreal

PULP AND PAPER MAGAZINE OF CANADA

VOL. 4.

TORONTO MAY, 1906.

NO. 5.

FEATURES OF THIS NUMBER

Paper Tariffs of the World
Economy of Steam in Paper
Mills

Paper Making in China
Dominion Forest Reserves
Making Corrugated Paper
Effects of Sizing on Paper
New Canadian Coating Mill
How the Pulp Industry
Chews up a Forest

The Largest Fourdrinier Wire Plant in the World

Eastwood Wire Mfg. Co.

Belleville, New Jersey, U.S.A.

MANUFACTURERS OF

FOURDRINIER WIRES,
CYLINDER and WASHER WIRE CLOTH,
DANDY ROLLS,
CYLINDER MOULDS,
ROLLED BRASS SCREEN PLATES,
PERFECTION BRONZE (cast metal) SCREEN PLATES,
SUCTION BOX COVERS, COUCH ROLLS,
NAME PLATES,
PERFECTION BRONZE, DIGESTER CASTINGS and Y VALVES,
for the manufacture of SULPHITE WOOD PULP,
PERFECTION BRONZE VALVES, bolts and fixtures, for SUL-
PHITE PROCESS.
BRASS, COPPER and IRON WIRE and WIRE CLOTH of every
description,
BABBITT METAL and all grades of ANTI-FRICTION METAL.
BRONZE and BRASS CASTINGS, from 1 oz. to 20,000 lbs. in weight

N. B.—We manufacture all of the above articles, and are not
merely dealers. Write for prices to

EASTWOOD WIRE MFG. CO.,
BELLEVILLE, NEW JERSEY, U.S.A.

The Largest Fourdrinier Wire Plant in the World

Foreign Phosphorbronze Fourdrinier Wires,

*Sulphite Pulps, Paper Stock and Rags,
Bleached Straw Pulp, also China Clay.*

JEAN FREESE, Vanderbilt Building
132 Nassau Street, **NEW YORK.**

FOURDRINIER MACHINE WIRES CYLINDER COVERS

Unequalled for Strength, Smoothness and Long Life.

GEORGE CHRISTIE, LIMITED

Ladywell Wire Works, **GLASGOW, SCOTLAND**

Agent—**THOMAS L. PATON,** 30 St. Francois Xavier Street, **Montreal,** who
holds stock for immediate delivery.

EDWARD J. WELCH, Pres. | **EMMONS CROCKER,** Vice-Pres. | **ARTHUR S. MORSE,** Secy.
ADAMS CROCKER, Treas. and Managing Director. | **HENRY W. S. DOWNS,** Supt.

Union Screen Plate Company of Canada, Limited.

Factory, Lennoxville, Que., Offices: { Lennoxville, Que.
Fitchburg, Mass., U. S. A.

Screen Plates



**The "Union" Bronze (best phosphorized cast metal) Plates
for Sulphite Mills. The Standard Rolled Brass Plates.**

The "Union" Cast Metal Suction Plates.

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

We carry in stock a large supply of the different sizes of both metals and can fill large orders promptly.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Galender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

ESTIMATES ON APPLICATION.

Norwood Engineering Co.,

FLORENCE, MASS., U.S.A.

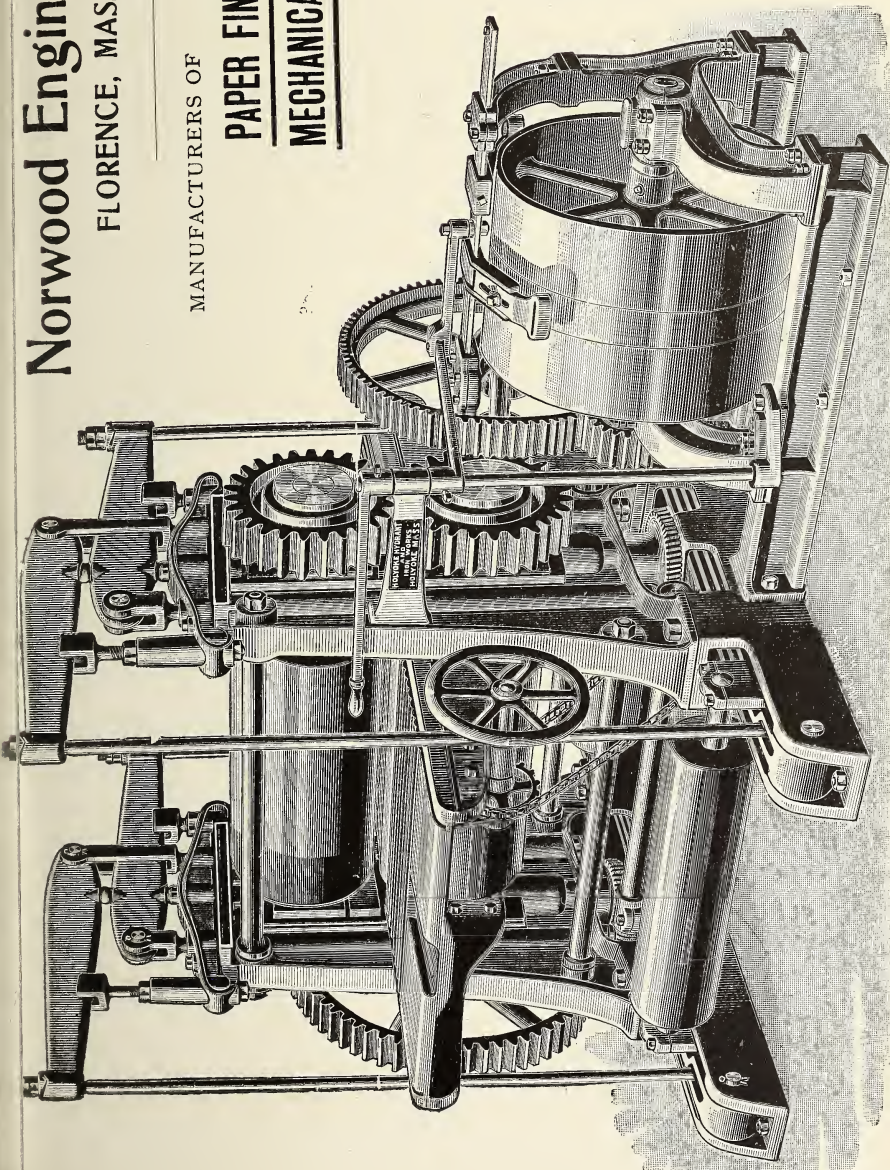
MANUFACTURERS OF

PAPER FINISHING MACHINERY

MECHANICAL FILTERS

Write for prices
and further
information.

(Plater for linen finish)



BERTRAMS, LIMITED

Papermakers'

Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermakers
embracing British, American and Continental Improvements

C. H. JOHNSON & SONS, Ltd.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rolls

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England.

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

Agents for Canada: C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL

INDEX TO ADVERTISEMENTS.

Atterbury Bros.....	41	Lea & Coffin, and H. S. Ferguson	9
Best Iron Works.....	47	Lombard & Co.....	39
Beon & Co., W. T.....	10	Little, Arthur D.....	9
Beley & Jackson.....	4	McDougall Caledonian Iron Works, The	
Beram's, Limited.....	6	John.....	37
Black-Clawson Co., The	7	McOuatt & Son, T.....	46
Brit & Co., F.....	10	Mears, D'Oyley & Co.....	43
Briner, Mond & Co., Limited	50	Miramichi Pulp & Paper Co.....	39
Calda Paper Co.....	49	Norwood Engineering Co.	5
Canadian Rubber Co. of Montreal.....	8	Paton, Thomas L.....	3
Cale, Gottheil & Overton.....	9	Ferrin & Co., Ltd., Wm. R.....	42
Christie, J.....	50	Porritt & Sons, Joseph.....	10
Christie, Limited, George	3	Porritt & Sons, Limited, Samuel	50
Cas & Co., F. H.	42	Porritt Bror. & Austin.....	6
Deew, J. A.....	9	Pringle & Son, T.....	9
Dilin Machine Co.	38	Pulp & Paper Trading Co., The.....	45
Dominion Belting Co.	46	Pusey & Jones Co.	40
Dawood Wire Mfg. Co.....	2	Quebec & Lake St. John Ry.	8
Dunson Mfg Co.....	37	Ritchie & Ramsay.....	45
Dunbanks & Moody	9	Riordon Paper Mills, Ltd.....	43
Eisher, Julius	45	B S. Roy & Son	42
Erise, Jean	3	Smith Co., S. Morgan	49
Erving, The B., Wire Co., Limited.....	46	Union Screen Plate Co.....	3
Faly, George F.....	9	Union Sulphur Co., The.....	43
Faksworth & Sons Co., Limited, Alfred.....	12	Vogel, C. H.....	9
Ha Knife Co., Limited, Peter	45	Walker, J. R. & Co.	46
Hole, J. H., & Sons Co.....	10	Wallace-Jaastad-Drewsen	50
Hogh, R.	50	Waterous Engine Works Co., Ltd.....	48
Huck & Sons, F. C.....	5	Wertheim & Co., A.....	44
International Pulp Co.....	9	Whittaker, Richard	11
Jenkes Machine Co., Limited	12 & 48	Wilson, Paterson & Co.	12
Johnson & Sons, Limited, C. H.....	6	Winn & Holland	50
Klein & Co., A.....	11	Wurster, Dr. C.....	40
Knapp, Herbert S.....	9	Young, J. S.....	49
Knott & Co., John.....	45		

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.

Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

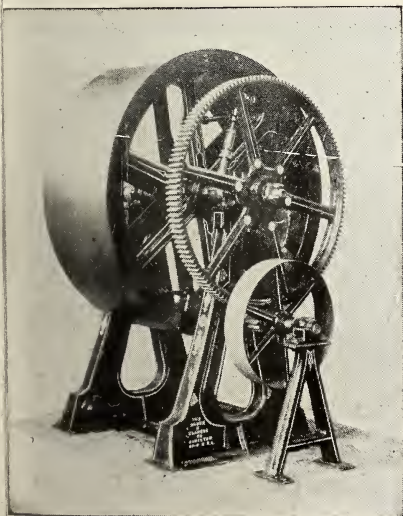
from new patterns and designs embodying the latest improvements.

Foot-power Perforators.

3 Roller Ink Mills.

Evaporating and Drying
Machinery.

We Solicit Correspondence.





Honest

Value

Com-
plete
Satisfac-
tion

We Make a Specialty of Covering
Couch, Press
and
Squeeze Rolls
For PULP and
PAPER MILLS.

Rubber Diaphragms
for Screens.
Deckle Straps.

Rubber Belting.
Packings, Valves,
Caskets, Fire,
Steam and Water
Hose, etc., etc.

WRITE US FOR ALL Your
Requirements in Rubber.

The Canadian Rubber Co.
Of Montreal Limited.

SALES BRANCHES:

172 Granville Street, Halifax, N. S.
 Imperial Bank Building, Montreal, Que.
 Front and Yonge Sts., Toronto, Ont.
 89 Princess Street, Winnipeg, Man.
 402 Cordova Street, Vancouver, B. C.

D. LORNE MCGIBBON,
 Vice-President and Managing Director.

A USEFUL PAPER SLIDE SCALE.

Messrs. Ritchie & Ramsay, Limited, are running on another page an advertisement of Thomlinson's Equivalent Paper Slide Scale, which is one of the handiest little articles in the trade. Evolved somewhat on the principle of the engineer's slide rule, it solves for the paperman the problems that confront him in the quickest possible time.

The simplicity of construction makes its use widespread, as any one can use it accurately after reading the instructions.

Millmen and paper dealers will find a great convenience to have one on their desks.



—The leather papers of Japan are made by coating the pulp with a mineral oil and subjecting it to pressure, rolling and a six months' drying. This product is as tough as leather, smooth, nearly transparent, and can be beautifully colored. It is as thick as cardboard, but flexible as kid. There are even woven fabrics of which the warp is paper and the woof cotton; and paper napkins, handkerchiefs, umbrellas and lanterns are a part of Japanese household economy.



This Railway runs through Two Hundred Miles of the Finest Spruce Forests of America, through a country abounding in Water Powers suitable for Pulp and Paper Mills and other industries, and easy access to the Steamship Docks at Quebec.

ALEX. HARDY,
 G.F. & P.A.

J. G. SCOTT,
 General Manager

QUEBEC, P. Q.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT and ENGINEER
SPECIALIST IN
Pulp and Paper making. F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
101 Tremont St., Boston, Mass.

Plans, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and F
Fits Burners for the Sulphite Process. F

GEORGE F. HARDY, M. AM. SOC., M.E. M. CAN. SOC. C.E.

Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of Mill Properties, Water Power Developments.
Mutual Reserve Building, - 309 Broadway,
NEW YORK.

"Asbestine Pulp" Filler

Superior to any Clay.

Delivered price on application.

INTERNATIONAL PULP CO.

New York City, U.S.A.

T. PRINGLE & SON

Specialties:—Pulp Paper and Fibre Mills,
Hydraulic Developments and Electrical
Transmissions

409, 410, 411, 412 Coristine Bldg.,
MONTREAL. F

C. H. VOGEL

A. M. Can. Soc. C.E. ENGINEER
OTTAWA, CAN.

WATER POWER

Paper, Pulp and Sulphite Fibre Mills

LEA & COFFIN, and H. S. FERGUSON, ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
Water Power Development and Trans-
mission. Steam Power Plants.

CORISTINE BUILDING, MONTREAL.

A. S. FAIRBANKS, Assoc. Mem. Can. Soc. C. E.
Assoc. Am. Inst. E.E.

H. A. MOODY, B.S., M.E.,
Assoc. Mem. Am. Soc. M.E.

FAIRBANKS & MOODY

Industrial Engineers
Paper and Pulp Mills
Hydraulic Development

150 Nassau St., New York.

J. A. DeCEW, B.A. Sc.

Chemical Engineer.

SUN LIFE BLDG., MONTREAL

Specialist in Soda Fiber and Paper Mill Chemistry.

Patented Processes for Digesting, Causticizing, Evaporation, Recovery.

Consultation.

Advice.

Reports.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

CHINA CLAY **ROSIN,**

Best Paper
Makers' Strained

Bleaching Powder. Soda Ash.
Ultramarine Blue.

STARCHES—Highest Grade Pearl
and Potato. FT

W. T. BENSON & Co., 164 St. James St., Montreal.

JOSEPH PORRITT & SONS

HELMSHORE NEAR
MANCHESTER

FELTS

and JACKETS FOR PULP and PAPER MILL

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes

Agents for the States and Canada,



F. BREDT & CO., - 240 Water Street, NEW YORK

Established 1864

Incorporated 1888

J. H. HORNE & SONS CO.,

LAWRENCE MASS.

MANUFACTURERS OF HIGH-GRADE

PAPER MILL MACHINERY

Beating and Washing Engines

"Jordan" Engines

"Horne" Improved Patent Engines

"Cloudman" Cylinder Washers

FOURDRINIER, CYLINDER & WET MACHINES

"Horne" Friction Cutters

Fan Pumps

Rag Knives

Cone Pulley Cutters

Stuff Pumps

Roll Bars

"Horne" Calenders

Calender Rolls

Bed Plates, Etc.

ORDERS FILLED ON RECEIPT

GET OUR CATALOGUE

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal

Sulphate Alumina

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, ===== MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y



127 BOARD OF TRADE BLDG., MONTREAL.

Agents for the United Alkali Co. of England

OFFER TO THE TRADE :

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.

F



VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature, or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leathers. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Hawksorth & Sons Co., Limited,
Mill Engineers and General Furnishers,
551 St. James Street, - Montreal.

REFUSE BURNERS

Our facilities for building Refuse Burners of any size are of the best. Our experience in this class of work has been extensive. If you propose erecting a Refuse Burner we should be pleased to furnish you estimates.

Your enquiries will receive our prompt attention.

Write for Bulletin No. 360.

THE JENCKES MACHINE Co., LIMITED

Executive Office
40 Lansdowne Street, Sherbrooke, Que.

Sales Offices { Toronto, Rossland,
Halifax, Vancouver

Plants { Sherbrooke, Que.
St. Catharines, Ont.

THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 4.—No. 5.

TORONTO, MAY, 1906.

{ \$1 A YEAR
{ SINGLE COPY 10C. }

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

SUBSCRIPTIONS: Canada, British Empire and the United States, \$1 a year; to Foreign Countries, 5s. a year.

The Pulp and Paper Magazine is published on the first Tuesday of each month. Changes of advertisements should be in the publisher's hands not later than the 10th of the month, and, where proofs are required, 10 days earlier. Cuts should be sent by mail, not by express.

E. B. BIGGAR,
PUBLISHER

A. M. FISHER, Business Manager.

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

CANADIAN SUPPLIES FOR NEW YORK MILLS.

In this issue a writer gives some instructive statistics on the paper and pulp trades of the United States making special reference to the mills of Northern New York. A representative of the "Pulp and Paper Magazine" who recently visited the Watertown district of Northern New York furnishes a timely commentary on the figures referred to. In the counties of Lewis, St. Lawrence, Franklin, and Jefferson, in which paper and pulp-making are the leading industries there are 45 paper and pulp mills and, according to the secretary of the Watertown Chamber of Commerce, the capital employed in these mills is \$6,333,267, the annual value of output \$9,395,568, the hands employed 4,240

the wages paid \$2,275,622 per year, the power used 101,509 horse-power, and the daily output 929 tons of paper, besides 500 tons of pulp. Watertown itself, the centre of a group of towns in this paper district has a population of 25,000, and the total capital invested in all manufactures more or less tributary to the pulp and paper trades is \$25,000,000. The paper industry was started at Watertown in 1808 by Knowlton & Rice (now Knowlton Bros. Co.), but it was not till about 1866 that the pulp industry began. Since then the industry has developed to the proportions indicated by the foregoing figures, with an effect upon the spruce forests, which should be noticed by Canadians, since a large proportion of the wood now consumed in the Watertown district is derived from the forests of Quebec and brought up the St. Lawrence in barges or by rail. The first point to be noticed is the marked increase in the price of wood. One large manufacturer informed our representative that ten years ago wood was to be had at from \$4 to \$5 a cord along the Black River, which furnishes the power to Watertown's mills, while now it is from \$10 to \$12 delivered at the mill. The average rise in recent years is 50 cents per cord per year. Other mills more favorably situated used to get their wood at \$2.50 a cord, with bark on, delivered at the mill. But an equally important fact is that 25 or 30 years ago

the spruce forests from which these mills derived their wood were right at hand. As late as ten years ago it was quite an expedition for a citizen of Watertown to penetrate through the woods to Cransbury Lake. Now the intervening country is stripped and a pulp mill is located at Newton Falls, near Cransbury Lake, over fifty miles back from Watertown. The district from Natural Bridge to Newton Falls, which was a solid timber belt less than ten years ago is now a barren waste for after the pulp-wood was taken off a fire which swept the country two years ago, burnt up the surface soil. Such are the ravages made upon this portion of the Adirondack country by the modern pulp industry, and such the reasons why the mills of the Watertown district are compelled to draw to an ever increasing extent on the forests of Quebec. The facts and figures here cited and those given by our correspondent present problems both for New York State and Quebec. At present it seems to be chiefly a forestry problem for Quebec, but it is both a manufacturing problem and a forestry problem for New York. The forests of Northern New York have been ravaged, but there is at least a well established paper industry to show as an off-set. Those parts of Quebec which are now being stripped to feed the mills of Watertown will also be desolated, but what will the people of Quebec have to show after the devastation of their land by the axe and by fire?



THE QUEBEC LIMIT LAW.

The Quebec law dealing with settlement and timber licenses summarized in our March issue has been put into force, but the classification of lands which it

calls for, has not yet been completed. The clause referring to transfers has been amended this past session. Clauses providing for automatic cancellation are simply disregarded by the agents. It is a chronic complaint of limit-holders against the laws brought forward for the administration of Crown Lands, that any part of the law that facilitates speculators getting hold of lands out of the limits, is put into very active operation, but any part which would improve the condition of the limit-holder is neglected. When complaint is made that the agents who do not carry out the law should be made to do so the Governments reply that they can do nothing with the agents, as it is a question of political influence. By the law of 1904 the twelve-children-law was abolished and a clause introduced allowing permits to be granted by the Government for fire-wood and building timber on lands under licence, but under the control of the limit-holder. The cancellation of the twelve-children-law is of great advantage to the limit-holders, but it is a far greater advantage to the Government as they had gotten themselves into such a tangle that the only way out of the difficulty was to abolish the law.

The question of Forest-Reserves is a very important one, and the Government seek by these means to preserve so much part of the forests for the Province, but on the other hand, they have also brought forward a scheme for Colonization-Reserves, which owing to its indefinite nature is causing a great deal of uneasiness.

In short, the question of the administration of the Crown Lands is still as vague as ever, and although the Minister is a very fair-minded one, he has a great difficulty in administering his

partment for the best interests, owing to the very powerful influence yielded to by certain organized bands of speculators throughout the Province.



Pulp & Paper Currency

We have received a sample of pulp prepared by a new cooking process developed by J. A. De Cew, paper and pulp mill chemist, Montreal. By the ordinary soda process eight to twelve hours are required to produce fibre in fit condition for paper-making, but the sample sent us was made from pine wood in one hour and a quarter. Mr. De Cew states that this process is specially adapted to making fibre from either hard woods or sawdust. The reduction in time of cooking is certainly remarkable, and this taken in connection with the variety of woods that can be operated on, makes Mr. De Cew's process well worthy of special attention by Canadian mills. We are not informed as to the relative cost of treatment, but hope to give the reader further information in another issue. Meantime the sample can be seen at this office by any pulp and paper manufacturer interested.



On the 1st October next a new tariff will come into operation in Japan. Under this tariff wood pulp, which is now dutiable at 0.34 yen per 100 kin, will be dutiable at 5 per cent. ad valorem or 0.34 yen per 100 kin. Under what circumstances the ad valorem duty is to be levied is not stated by Alex. MacLean, the Canadian Commercial Agent, who reports the change. The present duty on news paper entering Japan is 0.10 yen per 100 kin where it weighs not

more than 25 pounds per ream and measures not less than 1,086 square inches per sheet. Under the new tariff news paper will pay one yen per 100 kin when its weight does not exceed 45 pounds per ream in sheet measuring not less than 1,086 square inches. A yen equals 50 cents in Canadian money and 100 kin equals about 133 pounds avoirdupois.



The Government of India in sending to England for an expert to investigate the paper-making fibres shows it is fully alive to the importance of the paper and pulp industry. Mr. Sindall, who has spent some months in India at this work devoted a good deal of attention to the bamboo of Burmah. There is nothing new in the application of bamboo to paper-making as that material has been used for this purpose for a long time in China, but Mr. Sindall, who has just passed through Canada on his way home, informs us that the paper he has produced experimentally from Burmese bamboo should be specially adapted to book-making and for magazine purposes, and a large industry might be created in that part of India. As for other wood fibres for paper India has large quantities, but they are geographically scattered, and it is doubtful if there is a sufficient supply in any one spot to feed an industry of such magnitude as to make it an exportable product. India has hitherto not been a very successful paper manufacturing country.



A correspondent of the "Paper Trade Journal," of New York, has a sensational report of a projected combine among the pulp manufacturers of Canada to hold up prices, the reason being,

according to the correspondent, that at \$12 a ton, which some of them are selling at, the margin of profit is not more than \$2 a ton to the maker. This story hardly needs a denial. The price of Canadian pulp is not to be fixed by the Canadian maker, but will always be determined by the demand in the United States and European markets. The moment United States paper mills can get supplies at home at a lower figure than they pay in Canada they will want no Canadian pulp, and the price in Great Britain and Europe will also be largely determined by the state of the market there, and the production in Scandinavia. Even if such a combine were attempted it would soon go to pieces, and if it is never attempted it will be all the better for the Canadian manufacturer. The only kind of combine that will succeed among our pulp mills is a combination to produce a better and more uniform quality of pulp than can be turned out in Norway, Sweden or the United States. It is quality more than price which will determine the future status of Canadian pulp in the world's market.



The amount of money that is spent on chemical analysis and the testing of materials in the paper and pulp mills of Europe would surprise Canadians, who have not had actual contact with the methods of manufacture there. It would also surprise them to know that the expenditures in this department yield the best returns to the manufacturers. Sometimes almost the sole profit of a mill is in the recovery of some waste materials previously lost, or in effecting some previously unstudied economy pointed out by the chemist or the expert head of a department. It must be con-

fessed that among Canadian mills there is great waste of materials in some cases and lack of care and skill in other cases. If some mill owners who are complaining that there is no profit in the business would examine into the methods of their more successful competitors and would consult experts they would find that the trouble is not in the market, but in the mill. It is, therefore, a good thing for the paper mills in Canada that a man like Mr. De C. has come forward to assist those who desire to improve their products and increase their profits. There is no one in which has not some problems which a chemical engineer may help to solve and no matter how experienced or how painstaking a superintendent or head of a department may be he need not be afraid or ashamed to call in counsel such as the best manufacturers in the Old World do not hesitate to employ and aid their own skilled staff.



Forestry and Pulpwood

A conference is likely to be held on an early date at St. John, New Brunswick, between representatives of the John River lumbermen and the Grand Falls Power Company in an effort to reach an agreement upon features of the company's plans to which the lumbermen object. The lumbermen have at Ottawa objections to certain of the works which the company proposes to build in the development of Grand Falls.

The famous Robitaille timber tract situated in Bonaventure county, province of Quebec, and the proprietor Louis Robitaille, Quebec, have been to an American syndicate for six hundred thousand dollars. This was pleasing news to the people in Bonaventure, who have complained for some time that on account of these limits not

exploited it was a great drawback to colonization and the general progress of the country. It is said that the new company will begin operations immediately, which will mean a new era of considerable progress in the Bay of Calcut section.

The Delaware & Hudson River Railroad will shortly commence to build a section of their road through the southern part of the Province to connect with the port of Quebec. When completed the line of railway will form an air line between New York and Quebec city. The Delaware & Hudson supply all the paper mills in Northern New York and the Lake Champlain district with the raw material in the shape of pulp-wood, and as the northern half of this Province is becoming the greatest source of supply the construction of the Delaware & Hudson Railway into Quebec will result in a very large business. It will also be the shortest possible route for tourist travel from the central points of New York and New England and vicinity to Quebec, Lake St. John and the Saguenay by a connection with the Quebec and Lake St. John Railway.



SCIENCE IN THE PULP AND PAPER INDUSTRY.

In our April issue we gave a short description of the chemical laboratory of A. D. Little of Boston, which is maintained entirely in the interests of the paper trade. The success and growth of such an establishment as this is in itself evidence of the prosperity and progress resulting from the application of scientific methods in the paper-making industry. There is no doubt that much of the cheap production of the United States is the result of methods and economies worked out in the investigating and testing laboratories of this kind.

We are glad to say that the Canadian paper trade can also boast of a department of this kind, which was established a year in Montreal by J. A. DeCew,

B.A.Sc. chemical engineer. That one so well versed in the technology of paper-making should place his services at the disposal of the trade is an encouraging sign of our future development, and we are sure that those manufacturers who do not maintain their own laboratory will derive much benefit from his experience.

We can safely say that Mr. DeCew has made a more exhaustive study of paper-making chemistry than any other Canadian, having spent two years in



J. A. DeCew, B.A.Sc.,
Chemical Engineer.

post-graduate work at Toronto University in special researches in cellulose and the chemistry of wood. On leaving Toronto he took the position of chief chemist for the Canada Paper Co. at Windsor Mills, Que., where he remained in a responsible position for over three years. In this position he continued his investigation in the chemistry of soda pulp, coming in contact with some of the best American experts in this process, and he stands to-day an acknowledged authority on this subject.

He represents patented processes for causticizing and recovery, and stands

prepared to design and superintend the construction of complete plants for the production of soda fibre. We learn that some interesting results have been obtained by him on a new cooking process, the particulars of which we shall be pleased to announce as soon as patent rights are secured.

For special problems in sulphite and electrolytic methods Mr. DeCew is associated with Mr. Little of Boston, and will give prompt attention to specialties of this kind. Mr. DeCew is an associate member of the Canadian society of Civil Engineers, member of International Society of Paper Mill Chemists, member of the American Society for Testing Materials and of the International Society for Testing Materials. He is also a member of the Society of Chemical Industry, which is now an international institution.



CALENDER ROLL GRINDERS.

Paper-makers in both Canada and the United States are rapidly falling away from the out-of-date and costly method of shipping their Calender rolls away to be ground. The solution of the difficulty is found in the Roy Patent Calender Roll Grinders, which grind the rolls true without removing them from their housings, grinding them in their own bearings. This work can be done on holidays, thus saving the calender from being idle at all. With a Roy portable grinder little difficulty is experienced in keeping calender rolls of any description or size in perfect shape. With the grinder is a new patent differential motion for giving the emery wheel a slow, steady, positive traverse. These grinders are manufactured by B. S. Roy & Son, Worcester, Mass. The firm has been building nothing but grinding machinery for 37 years, and every machine is guaranteed. These are some of their recent sales, together with the sizes:—

New York & Pennsylvania Co., Lockhaven, Pa., 72-in. x 36-in. x 18-in.

Kiushu Paper Co., Limited, Yatsushiro, Japan, 96-in. x 40-in. x 36-in. x 26-in.

Malone Paper Co., Malone, N. Y., 100-in. x 24-in.

Sydney Paper Mills, Limited, Sydney, Australia, 100-in. x 24-in. x 20-in. x 18-in.

The Kellner-Partington Paper Co., Borregaard pr Sarpsborg, Norway, 120-in. x 12-in.

Brownville Paper Co., Brownville, N. Y., 64-in. x 20-in.

Manhattan Rubber Manufacturing Co., Passaic, N. J., 64-in. x 26-in.

Manhattan Rubber Manufacturing Co., Passaic, N. J., 60-in. x 32-in.

Canada Coating Mills, Georgetown, Ont., 55-in. x 18-in.

New Zealand Paper Mills, Limited, Dunedin, N. Z., 85-in. x 18-in.

Falulah Paper Co., Fitchburg, Mass., 53-in. x 15-in.

M. Hartmann, Kristiania, Norway, 101-in. x 16-in.

M. Hartmann, Kristiania, Norway, 102-in. x 26-in.

M. Hartmann, Kristiania, Norway, 102-in. x 26-in.

M. Hartmann, Kristiania, Norway, 108-in. x 28-in. x 36-in.

M. Hartmann, Kristiania, Norway, 122-in. x 30-in.

M. Hartmann, Kristiania, Norway, 124-in. x 12-in.

Eastern Manufacturing Co., Somerset, Me., 110-in. x 28-in. x 34-in. x 30-in. x 46-in.

Little Falls Paper Co., Newburg, N. Y., 82-in. x 20-in.



—The fibre papaya, commonly known as the Mexican papaw, is reported to be well adapted to the manufacture of all grades of paper. The fibre is the length of the tree trunk and appears to be quite strong and rather silky in texture. With the exception of the bark and a small pithy heart, the trunk is composed entirely of this fibrous material. The plant grows rapidly, attaining a diameter of from 2 to 3 feet when one year old.

Canada Coating Mills, Limited

The establishment of the Canada Coating Mills at Georgetown, Ontario marks another forward step in the progress of the Canadian paper trade. That there is ample business in Canada for mills of this kind is shown by the fact that up to the present time the trade and navigation returns indicate that a very large percentage of the finished papers used in the country have been imported. Fortunately Canadians are now face to face with the fact that as good quality can be made in their own country, and as the population increases all high-class papers come to be more extensively used mills such as those at Georgetown will undoubtedly flourish.

country by the wonderful possibilities in the trade which presented themselves, Mr. Schumacher became largely interested in the new paper company, and the work of erecting the Georgetown mills was undertaken. Experience enabled him to make new Canadian coating mills a model in every respect, and that he has been eminently successful anyone who has seen the mills in operation can testify.

In the completion of so modern a plant it is interesting to note that Canadian manufacturers have figured conspicuously. The two automatic smokeless furnaces were installed by the Murphy Iron Works, of Walkerville.



Canada Coating Mills.

The Canada Coating Mills were erected during 1905, and began operations early this year. The plant is one of the most complete of its kind in America, being constructed throughout of cement and steel. Wm. Schumacher, the manager of the company, and one of its heaviest stock-holders, superintended the construction, and installed the machinery, much of which was brought into the country in parts to effect a savings in the customs duties. Few men connected with the paper trade have passed through as useful an experience as Mr. Schumacher. Previous to building the Canada Coating Mills he already had charge of the erection of two large mills in the United States, the last being the Imperial Coating Mills at Kamazoo, Michigan. Attracted to this

These furnaces, which are manufactured both in Canada and the United States, have caught the fancy of many of the large paper mill owners on account of their economic qualities. In addition to giving perfect combustion Murphy furnaces reduce coal consumption, increase steaming capacity, and totally eliminate the smoke and soot nuisances.

The plant is operated by steam power, the engine used being a 20 x 48 heavy duty Corliss, made by the Goldie & McCulloch Company, of Galt. This is the largest engine used in any paper mill in Canada. The heating and ventilating systems were made and installed by Sheldon's Limited, formerly Sheldon & Sheldon, Galt. These systems have been extensively installed in manufacturing plants throughout Canada and have

given excellent satisfaction. The electric plant is from the Canadian General Electric Company. The drying plant was built and installed by Mr. Schumacher himself, and is a tribute to his wonderful constructive abilities.

The paper machinery proper is the product of some of the best known American makers. The calenders, coating and plating machinery came from the Norwood Engineering Company, of Florence, Mass. This company makes all classes of paper mill machinery as well as mechanical filters. They have had a particularly large demand for their special plater for linen finish. The linen finish paper on account of its artistic qualities has caught the eye of the

American consumer. It is bought in large quantities, and is a kind that is likely to be in demand for many years. The large 76-inch Cranston undercutter paper cutter was made by the Smith & Winchester Company, of South Windham, Connecticut, and the rotary cutter by the Hamblett Machine Company, Lawrence, Massachusetts.

The Canada Coating Mills, Limited was incorporated in October, 1904, with the following officers: John R. Barber, president; John Waldie, vice-president; Wm. Schumacher, manager; R. Waldie, secretary. They manufacture enamelled book, lithograph, cardboard manilla, and box board, selling to the wholesale and jobbing trades. The output of the mills is one car a day.



The Use of Steam in Paper Mills

As the paper leaves the presses for the dryers it contains from 65 to 75 per cent. of water. A small percentage of this water remains in the paper when it reaches the reel, so that on the average it is fair to assume that for every pound of paper made two pounds of water must be evaporated. The temperature of the water as it comes from the presses may be assumed to be about 65 or 70 degrees. Then to heat the water from 65 degrees to 212 degrees and evaporate it into steam will require 1,113 British thermal units per pound of water.

In modern machines the steam pressure in the dryers is carried at from 1 to 6 pounds. The water as it leaves the dryers will have a temperature of about 210 degrees. One pound of steam at 5 pounds pressure contains 1,183 heat units, of which it will give up 1,183 less 210, equals 973 heat units. If, then, all of this heat went into the water of the paper, the amount of steam required per pound of paper would be

$$\frac{2 \times 1113}{973} = 2.29 \text{ pounds.}$$

This makes no allowance for radiation from the machine nor for the heat required to raise the temperature of the paper itself from 65 degrees to 212 degrees, nor for any other leakage wastes. If it is possible in the process to reduce the amount of moisture in the paper 6 per cent., the amount of steam required would be 1.72 pounds instead of 2.29 pounds. This clearly indicates one point to be carefully watched.

Increasing the pressure carried in the dryers makes more heat available for each pound of steam if the temperature of the return water is kept below 210 degrees. In addition to that, the temperature in the dryers being higher, less square foot of surface will transmit more heat, drying the paper faster with fewer number of dryers. There is an objection, however, to carrying higher pressure in the dryers, which nearly every case offsets the advantage just noted. If steam at 10 pounds pressure or more is carried in the dryers, it will blow through the syphon pipe and be carried back to the hot well where becoming condensed and giving up its latent heat.

This loss may be excessive. Many machines are driven far beyond their economical speed, requiring high steam pressures and consequent losses. A reduction in speed of 10 or 12 per cent. will reduce the pressure required and save from 5 to 10 per cent. of the fuel consumed per pound of paper. Increasing the number of dryers on the machine will produce the same results without curtailing the output.

In a machine having a large number of dryers the tendency is for the steam to blow through some of the dryers near the calender end, and equalize the pressure on the steam and return headers. If the dryers depend on syphons to empty them, the result will be that many of the dryers will not discharge their water until half full, resulting in streaky and irregular drying.

Various devices have been installed to remedy this trouble, showing large returns on the investment. In order that there may be a sufficiently rapid transfer of heat to satisfactorily dry the paper, there must be a temperature in the dryers above 212 degrees. The fewer the number of dryers, the higher must be that temperature; and, conversely, the greater the number, the lower the temperature. However, in every machine designed to run at a given speed, there is a certain number of dryers, below which it is not economical to go, and any further reduction in temperature of steam will prevent the necessary transfer of heat. The result will be excessive radiation losses without proportionate gain.

Tests on machines using live steam show a consumption of about 2.80 or 3.00 pounds, which represents about 25 per cent. in radiation and other unaccounted for losses. In the same machines, when using exhaust steam, the steam consumption is from 15 to 20 per cent. greater, or 3.3 pounds per pound of paper. This small additional steam consumption is in reality the cost of the power to drive the machine, and it is an exceptional case where that cost is less than the cost of any other power.

Here, again, the superheated steam may sometimes be used to advantage. It will reduce the heat losses in the engines and consequent steam consumption, but will probably not reduce the amount of heat available for drying.

The presence of cylinder oil in the exhaust may coat the interior of the dryers to such an extent as to impede the necessary rapidity of transfer of heat. The best oil separator obtainable should be installed in the exhaust near the engine.

All consideration of fuel consumption has so far been purposely omitted. The amount of steam which can be produced per pound of coal varies so much with the quality of the coal that the fuel consumption in no two mills will be the same. Assuming a coal which, with an ordinary boiler plant, will give an evaporation of, say, $9\frac{1}{2}$ pounds of water per pound, the fuel consumption of the machine itself will be between 0.30 and 0.35 pound of coal per pound of paper made. To this must be added an amount to cover radiation losses in the steam piping, steam used to heat the stock, dry the machine-room roof, or other processes incidental to the industry, and in winter time the necessary steam for heating the mill.

The ventilation of the machine-room is an unusually important problem. For every ton of paper made two tons of water must be evaporated and carried off by the air of the room before it condenses on the cool surfaces. There are often two machines in each room, each making a ton or a ton and a half of paper every hour.

One pound of air at 132 degrees temperature will carry 0.1177 pound of water at saturation, or at 80 per cent. saturation about 0.09 per pound of moisture. One pound of air at zero temperature and 60 per cent. saturation contains 0.0005 pound of water, which may be neglected. For each ton of paper made in twenty-four hours there will be given off 166.7 pounds of water per hour, which will require 1,852 pounds or 460 cubic feet of air per minute to absorb it.

The amount of heat required to raise this air from 10 degrees below zero to

132 degrees above is found by multiplying the weight of air by 0.2375 and by the difference in temperature, or 142. In addition to the volume of air computed by this method, there must be, in large rooms having no hoods over the machines, more air provided, which in

all probability will short circuit and absorb its proportionate amount of moisture. Many successfully ventilated machine-rooms have an air change every two or six minutes. With a properly designed system it is not necessary to change so often.—From an article in *Cassier's Magazine*.



Corrugated Paper

The use of corrugated paper for packing dates back about 25 years. The first patents for manufacture of corrugated paste board or paper seem to have been accorded in the United States, and it is from America that the products and methods of manufacture found their way to England, Germany and France. The use of the product rapidly developed in these countries, especially for packing bottles and flasks of all kinds.

The usual methods of manufacture consist essentially in running the paper or board between grooved cylinders running one on the other. The corrugations thus obtained have no rigidity of their own beyond that possessed by the paper, and to utilize the material it must be stiffened by gluing a sheet of smooth paper on the corrugations. Even then the material only presents a slight resistance to crushing and cannot be used for packing heavy goods.

A process of manufacture has lately been introduced by M. Thiébaud, who claims a new principle. He has given the name of "Ondulium" to his product. The grooved cylinders are replaced by endless chains, the links of which penetrate one into the other, thus compressing the paper or board to be corrugated. The chains are heated at a high temperature by gas ranges. The chief advantage of the process consists in this, that when the paper merely passes between two grooved cylinders it is subjected to

the corrugating pressure only during a very brief period at the point of contact with the cylinders, and consequently at one single point mechanically—sufficient duration of pressure can only be given by running the cylinders very slowly—chains, on the contrary, the paper compressed during all the time it is passing between the two parts of the parallel chains, and this period of time can be lengthened without decreasing the speed by suitably increasing the length of the chains. Their high temperature causes dessication, and consequently gradual hardening of the paper, which at the same time acquires its final shape. The emulsion obtained can then be made complete and effective and also rapid.

In the machines employed at Vitry-sur-Seine Mill the moist paper is gripped at entering the apparatus compressed along a length of fifteen centimetres before making exit almost dry, hard and corrugated. One can see the difference in the product which can be produced by compression operated in such conditions compared with that obtained on a cylinder exerting its maximum stress at a single point only.

Endless chains have other advantages also compared with cylinders which necessarily move slowly and consequently give a limited production. Their grooves are calculated to a certain depth and thickness

Thus satisfactory results can only be obtained with the paper for which they are constructed. Any thicker or thinner paper cannot be properly treated. With chains, on the contrary, it is possible to obtain, by simple adjustment, a depth of fluting suitable for the paper utilized, and it is always possible to work at a greater speed than with cylinders, thus increasing production. M. Thiébaud has also invented appliances to glue in dry immediately the sheets of both paper that are fixed on both sides of the corrugated product.

It is claimed by the inventor that in a single operation he manufactures "ondulium" with smooth sheets fixed on one or both sides as required. The material he produces is much more resisting than the corrugated paper made by the old methods. This increase of resistance makes it possible to use the paper for packing bottles without any re-enforcing, and covered on one side to pack heavy objects, or on both sides to make crates and cases, instead of wood, which it has the advantage of being lighter. M. Thiébaud thus manufactures slabs which can be employed in many instances instead of wood. By superposing two or more sheets of corrugated board with the fluting laid parallelly or vertically boards are made as strong as required for various purposes. By coating them slightly with plaster or cement the inventor manufactures tile which can be employed for building light partition walls and especially roofs for works. The tiles are light and contain a great deal of air. They are claimed to be perfect insulators of heat, cold and sound; their resistance to impact is also great.

Another application of this new product which seems likely to be in extensive demand is as a heat insulator, as has already been made with ordinary corrugated paper. By mixing a small percentage of asbestos

with the pulp M. Thiébaud makes the corrugated board fireproof and even unaffected by heat and as this product has a series of little channels inside full of motionless air it is comparable to straw, from the point of view in question, which as we know is a very bad conductor of heat.

Asbestos-ondulium employed as heat insulator was the object of an official test at the Conservatoire des Arts et Métiers last year. This test consisted in coating a copper tube about 1.02 metre long and 0.07 metre in diameter with asbestos-ondulium 25 millimetres thick. Steam was run through the pipe at temperatures of more than 90 degs. to 170 degs. (C.), more than that of the room and measuring the loss of heat from the tube during an hour with and without the coating. When the difference in temperature of the tube and the air attained 170 degs. (C.), the loss through the tube was only 159 large calories per hour, viz., 723 per square metre, whereas through the bare tube it was only 484 calories or 2,200 per square metre. The economy due to the insulator was then

$$484 - 159 = 0.67$$

$$484$$

The average for all the experiments was 0.64.

Another official report from the Conservatoire states that a tube coated with ondulium was kept at a temperature of more than 310 degs. (C.) over that of the air, which was about 14 degs. (C.) during four days. Then when the material was suddenly removed from the tube it was found to be quite unchanged. With this difference of 310 degs. (C.) 1,610 large calories per square metre passed through the coated tube per hour, whilst with the bare tube the loss was 5,636 calories which corresponds to an economy of 0.71.

The new product presented by M. Thiébaud seems suitable for many useful and varied applications.

Forest Reserves' Bill

One of the important bills before the present session of the Dominion Parliament, that respecting the establishment of forest reserves, came up for its third reading on the 8th inst., and after considerable discussion it was allowed to stand over for future consideration in order that some amendments may be offered.

The bill seeks to reserve Dominion lands in the Provinces of Manitoba, Saskatchewan, Alberta and British Columbia in order to protect and improve the forests for the purpose of maintaining a permanent supply of timber to maintain conditions favorable to a continuous water supply, and to protect, so far as the Parliament of Canada has jurisdiction, the animals, fish and birds within the respective boundaries of such reserves, and otherwise to provide for the protection of the forests in these Provinces.

There is one reserve in British Columbia, viz., the Long Lake Dominion forest reserve in the railway belt containing 118 square miles. There are six in Manitoba: Riding Mountain, 1,535 square miles; Turtle Mountain, 109 square miles; Lake Manitoba West, 248 square miles; Spruce Woods, 295 square miles; Duck Mountain, 1,251 square miles; Porcupine Mountain, 2,412 square miles. There are three in Saskatchewan: Beaver Hills, 72 square miles; The Pines, 145 square miles, and Moose Mountain, 163 square miles. The Government thus proposes to reserve the vast territory of 6,348 square miles. The lands within these reserves are to be withdrawn from sale, settlement and occupancy. The reserves are to be under the control and management of the Superintendent of Forestry, subject to the direction of the Minister of the Interior, the Governor-in-Council to make regulations for the management and utilization of such reserves.

The bill also provides for the exchange of lands within the reserve for available Dominion lands situated outside the boundaries of the reserves. The

bill does not apply to lands to which the Crown has no title.

Both parties were at one regarding the expediency of the bill. It is the direct outcome of the recent Dominion Forestry Convention, and the long discussion upon the details of the great scheme was carried on amicably. The tenor of the Opposition view was expressed in brief by Mr. Borden, who said that what they had to keep before the was the danger of forest fires and the enormous wealth which the establishment of these reserves would create.

As regards forest fires, the difficulty would be to adequately guard against them. Prospectors, Mr. Fowler pointed out, were mostly to blame for the disastrous fires which had occurred in British Columbia. Then another matter which should occupy the attention of Government, Mr. Borden said, was the establishment of a system of cutting that the system should be that of an annual crop. Another serious matter was to take care that the profits derived by private parties cutting the timber were not out of proportion.

What the Government should have in view was: What timber rights there are within the areas, what the railway rights are, what the squatters' rights are, what claims the railway companies have within the areas, and if there apart from the reserves, an area sufficient for the railways to make their selections.



Among the boiler contracts at present being filled by the Jenckes Machine Limited, of Sherbrooke, Que., is one for a new boiler plant which the A. C. Lumber Company of Etchemin, B. C., is installing. This plant will consist of four 180-h.p., 72-inch diameter 16 feet long, high pressure boilers with all fixtures and fittings, smoke breeching and 600-h.p. feed heater. A. S. Gravel, manager, of Gravel Lumber Co., has recently returned from a business trip to Europe.

Paper Tariffs of the World

The Department of Trade and Commerce is undertaking a useful work in compiling the tariffs of the principal countries of the world with which Canada may do business.

The following are the duties on paper and manufactures of paper of the various countries dealt with, including the paper tariff of our own country and of the various portions of the British Empire:

Canada.

Paper hangings or wall papers, borders or bordering, and window blinds of all kinds; ruled and border and coated papers, papeteries, boxed papers, pads not printed, papier mâché ware, n.o.p.; envelopes, and all manufactures of paper, n.e.s., 35 p.c. ad val.

Paper of all kinds, n.e.s.; paper sacks or bags of all kinds, printed or not; straw board in sheets or rolls; tarred paper, felt or straw board, sand paper, glass or flint paper, and emery paper, 25 p.c. ad val.

Union collar cloth paper in rolls or sheets, glossed or finished, 20 p.c. ad val.

Union collar cloth paper in rolls or sheets, not glossed or finished, 15 p.c. ad val.

Shot paper, made on four cylinder machines, and calendered to between .006 and .008-inch thickness, for the manufacture of shot shells, to be used exclusively in their own factories, free.

Note.—Such paper may be imported only at ports named by the Controller of Customs. This exemption shall cease when such paper becomes an article of Canadian manufacture.

Plain basic photographic paper, baryta-coated when imported by manufacturers of sensitized paper for use exclusively in manufacturing albumenized and sensitized photographic paper in their own factories, free.

Paper waste clippings; tubes and cones of all sizes made of paper, when imported by manufacturers of cotton

yarns or cotton fabrics, to be used in winding yarns thereon in their own factories, free.

News printing paper in sheets and rolls, including printing paper valued at not more than 2c. per lb., 15 p.c. ad val.

Great Britain.

Paper and manufactures of, free.

Australian Commonwealth.

Wrappers, paper used in packing beer and wine bottles (used as a substitute for straw wrappers), printed with the name of the buyer; cigarette pouches of paper, with name of firm printed thereon; manufactures of paper for advertising purposes, 6c. per lb.

Writing paper cut less than 16 x 13 inches (when made up in packets without envelopes, 25c. p.c. ad val.); also toilet papers in rolls or packets; cartridge and blotting paper, 15 p.c. ad val.

Paper parasols and articles manufactured from pulp, papier mâché, 20 p.c. ad val.

Brown and sugar paper (grey, blue and other tints), and fruit bag paper, per 100 lbs. 65c.

Paper bags, per 100 lbs., \$1.08.

Straw board paper (except when manufactured into bottles, envelopes, etc., 25 p.c. ad val.), per 100 lbs., \$2.19.

Emery and flint paper, and cloth filter paper, litmus paper, pulp for manufacturing paper, roofing, sheathing and insulating paper, true vegetable parchment, cut and uncut tinfoil paper, and surface coated paper; fashion plates and paper patterns; ceramic transfers for pottery; coated printing paper; uncoated printing paper in sizes not less than 20 x 25 inches or its equivalent; paper shavings and waste paper for paper-making; stay paper gummed on one side, in rolls cut to a width not more than one inch; paper tubes or covers for bodkins and press papers, being parts of machinery for woolen mills; also tissue cap paper

(not exceeding 10 x 10 inches) writing and typing paper in sheets not less than 16 x 13 inches, free.

All other paper, including cardboard, pasteboard, pulp-wood, cloth-lined boards and paper, floor paper and paper hangings; also paper used in cash registers, 15 p.c. ad val.

(Note.—A drawback equal to the amount of the duty paid is allowed on cap paper used in the manufacture of toilet paper and on paper used in the manufacture of envelopes within the Commonwealth, on exportation.)

Barbadoes.

Printing, writing and wrapping paper, free.

All other paper and stationery, 10 p.c. ad val., with an additional charge of 20 p.c. on the amount of the duty leviable at the rate given.

Bermuda.

All paper and stationery, 5 p.c. ad val.

British Guiana.

Printing paper imported by or directly for the conductor of any newspaper or printing establishment for the exclusive purpose of being used by him in the course of his trade, free.

All other paper and stationery, 15 p.c. ad val.

Jamaica.

Printing paper, free.

All other paper and stationery, 16-2-3 p.c. ad val., with an additional charge of 6 p.c. on the amount of duty leviable at the rate given until March 31, 1906.

Leeward Islands.

Antigua—13 1-3 p.c. ad val.

St. Christopher—11 p.c. ad val.

Newfoundland.

Printing paper imported by printers for use in their business; paper for use under the metal sheathing of vessels, when imported under regulations laid down by the Governor-in-Council; parchment or wax paper imported exclusively for wrapping boneless fish,

or for the lining of tins used in the lobster packing industry of the colony, free.

Marble paper and paper board, when imported by bookbinders for use in their business, and not for sale; also paper covers of books when imported by printers, 10 p.c. ad val.

Wrapping and toilet paper; sheathing paper not elsewhere specified; sand glass or flint paper; emery paper mill-board; strawboard, in sheets or rolls; tarred paper, felt paper; ruled bearded and coated paper; papeterie boxed papers, pads not printed or also envelopes, 35 p.c. ad val.

Paper bags or sacks printed on, 50 p.c. ad val.

Not printed on, 35 p.c. ad val. (Drawback of one-half the duty is allowed when they are printed on in the colony.)

Paper hangings and borderings, 35 p.c. ad val.

All other paper and stationery, 35 p.c. ad val.

New Zealand.

Book or writing paper (hand or machine-made) in sizes not less than demy and in original wrappers; printing paper, including stereotype sizes larger than demy); also all menized, embossing, photographic and lithographic printing paper; monotype paper for use in connection with linotype and typesetting machines; covering (medium and double foolscap) paper in original mill wrappers; labels; paper—cloth-lined, enamelled, gelatine, ivorite and metallic, in sizes not less than demy; cheque paper (hand-made); butter (known as parchment paper); cartridge, for making drawing books; also cartridge (air-dried brown) invoiced at not more than 37s. (\$8.98) per cwt., and larger in size than 2 ft. 5 ins. x 2 2 ins., for cartridge making; chap tissue; corrugated foil for theatrical decorations; glass; insulating paper for refrigerating works; oiled for artistic also tin foil (for bag making) of s

not exceeding 22 ins. x 13 ins.; bookbinders' end papers; marble paper and thick vellum; check measures; printed designs for fretwork; patterns for costumes; materials for making cardboard boxes, viz., gold or silver paper; plain or embossed, stamped or embossed paper in strips; gelatine and colored papers, known as "box papers"; old newspapers; fly-papers; "Wallesden" paper; card, paste and wood pulp board of sizes not less than royal" (including veneered cardboard; and strawboard, 20 ins. x 25 ins., not lighter than 3 oz.); veneer paper, free.

Wrapping paper, viz., blue candle, glazed cap, glazed casings, small hand, issue, brown, cartridge, sugar and other wrapping paper, including waxed paper for cigarettes; tinfoil tea paper; paper for newspaper wrappers; ribbed issue paper used for photographic purposes; also curling papers, per 100 lbs., \$1.09.

Paper hangings, 15 p.c. ad val.

Cardboard boxes, complete, or cardboard cut for boxes, 25 p.c. ad val.

Paper bags, coarse, including sugar bags, per 100 lbs., \$1.82.

Paper bags, n.o.e., 25 p.c. ad val.

Other paper, 20 p.c. ad val.

South Africa.

Paper for printing books, pamphlets, newspapers and posters, or for lithographic purposes; bookbinders' boards, marble paper and vellum; cardboard boxes (empty), put together or in pieces; paper shavings for use only as packing material, free.

Print paper: max. tariff, 10 p.c. ad val.; min. tariff, 7½ p.c. ad val.

Other paper and stationery: max. tariff, 10 p.c. ad val.; min. tariff, 7½ p.c. ad val.

Trinidad.

All kinds of paper and stationery, 5 p.c. ad val.

Windward Islands.

Guatemala—Printing paper, free.

St. Lucia—Paper and stationery, 15 p.c. ad val.

Belgium.

Pasteboard, bituminous, for roofing purposes: max. tariff, 7½ p.c. ad val.; min. tariff, 5 p.c. ad val.

Wood pulp: max. tariff, 15 p.c. ad val.; min. tariff, free.

Frames of pasteboard, carton pierre or papier mâché: max. tariff, 15 p.c. ad val.; min. tariff, 10 p.c. ad val.

Other paper, cardboard or papier mâché wares: max. tariff, 22½ p.c. ad val.; min. tariff, 15 p.c. ad val.

Paper, other than paper hangings: max. tariff, \$1.05 per 100 lbs.; min. tariff, 70c. per 100 lbs.

Paper hangings: max. tariff, 52.5c. per 100 lbs.; min. tariff, 35c. per 100 lbs.

Cuba.

Paper, continuous or in sheets, white or colored, used for wrapping packages, bundles, etc., not including manilla, per 100 lbs., \$1.42.

Paper, except manilla, manufactured into bags of any kind shall be dutiable, when without printing, with a surtax of 30 p.c. If printed, whether in sheets or bags, it shall be dutiable with a surtax of 50 p.c.

Paper in sheets, ruled or not, unprinted, white, or colored, used for writing purposes, including blank books of the same, \$4.55 per 100 lbs.

Envelopes of all kinds, the same, with a surtax of 30 p.c. ad val.

Wall paper, printed—

On natural ground, per 100 lbs., \$2.36.

On dull or glazed ground, per 100 lbs., \$3.55.

With gold, silver, wool or glass, \$15.95 per 100 lbs.

Paper of all kinds in cases, 10 p.c. ad val.

In other packages, 35 p.c. ad val.

Common packing paper; straw, sand or glass paper, \$1 per 100 lbs.

Blotting paper, \$1.30 per 100 lbs.

Other paper not specially mentioned, including manilla paper and press copy books, per 100 lbs., \$2.72.

Note.—Manilla paper manufactured into bags of any kind and cigarette paper in books or rolls (*bobinas*) shall be dutiable with a surtax of 30 p.c.

Pasteboard in sheets—

(a) Cardboard paper and fine, glazed or pressed cardboard, \$2.16 per 100 lbs.

(b) Other pasteboard, 59c per 100 lbs.

Manufactures of pasteboard—

(a) Boxes of common pasteboard, lined with ordinary paper, \$1.19 per 100 lbs.

(b) Boxes of fine pressed or glazed cardboard, or with ornaments, or lined with fine paper, and articles not specially mentioned, 12c. per 100 lbs.

Printing paper made from wood pulp, in rolls, if imported by the publisher himself, to be used solely by him for printing and publishing purposes, is admitted free of duty.

Paper pulp, 7c. per 100 lbs. This only includes paper pulp perforated in such a manner as to be fit only for the manufacture of paper or pasteboard. Pulp not perforated is dutiable as common pasteboard. Wood pulp for making paper is free of duty.

On all other goods, wares, merchandise and effects not otherwise enumerated or provided for, except crude materials, 32½ p.c. ad val.

Denmark.

Common, waste and packing paper; also glass, sand, emery, asphalt and tarred paper; carton pierre and common ornaments and articles thereof, 25c. per 100 lbs.

Other kinds of paper; also if colored in the mass, varnished or oiled; chalk paper, etc., \$1.29 per 100 lbs.

Colored, gilt, silvered or embossed paper, engravings, lithographs, etc., ruled paper, paper patterns and pattern sheets; envelopes and other paper with linings, etc., of cotton or linen, \$4.09 per 100 lbs.

Other articles of paper and of papier mâché, including paper with linings of silk or wool, 8.18 per 100 lbs.

France.

Paper of all kinds other than fancy paper, machine made, per 100 lbs.: max. tariff, \$1.14; min. tariff, 88c.

Hand-made, imported in sheets, with the four edges untrimmed, per 100 lbs.: max. tariff, \$1.32; min. tariff, \$1.03.

Fancy papers, white or colored, marbled imitation Indian, goffered, stamped or cut, per 100 lbs.: max. tariff, \$3.16; min. tariff, \$2.63.

Do., covered with metal of any kind either in leaf or in powder, per 100 lbs.: max. tariff, \$6.32; min. tariff, \$5.26.

Paper hangings, per 100 lbs.: max. tariff, \$1.14; min. tariff, 88c.

Sulphurated paper, per 100 lbs.: max. tariff, \$2.20; min. tariff, \$1.75.

Albumenized photographic paper, not sensitized, per 100 lbs.: max. tariff, \$10.97; min. tariff, \$8.77.

Albumenized paper, sensitized with salt of silver or platinum; negative paper so-called *pelliculaire* paper, in sheets or rolls (stripping film, transparent film, ivory film), per 100 lbs.: max. tariff, \$19.74; min. tariff, \$17.55.

Carbon tissue, per 100 lbs.: max. tariff, \$5.26; min. tariff, \$4.39.

Paper sensitized with iron salts, per 100 lbs.: max. tariff, \$3.59; min. tariff, \$2.63.

Rough, in sheets, weighing at least 1 lb. per 3.28 sq. ft., per 100 lbs.: max. tariff, \$1.14; min. tariff, 88c.

Papier mâché, per 100 lbs.: max. tariff, \$1.05; min. tariff, 80c.

Cut or shaped for boxes, per 100 lb.: max. tariff, \$1.67; min. tariff, \$1.40.

Cardboard boxes, covered or not with white or colored paper, per 100 lb.: max. tariff, \$3.95; min. tariff, \$3.16.

Cylindrical or conical tubes, called *bobettes*, for spinning and weaving, per 100 lbs.: max. tariff, \$2.20; min. tariff, \$1.75.

Cardboard goods, ornamented with paintings, reliefs, stuffs, wood, plain straw and common metals, per 100 lbs.: max. tariff, \$7.89; min. tariff, \$6.32.

Articles of cardboard, moulded, compressed or hardened, with or without reliefs, per 100 lbs.: max. tariff, \$1.14; min. tariff, \$1.40.

Lacquered or covered with a uniform varnish, per 100 lbs.: max. tariff, \$5.26; min. tariff, \$4.39.

With painted or inlaid decorations, per 100 lbs.: max. tariff, \$21.05; min. tariff, \$17.55.

Cellulose pulp, mechanical dried, per 100 lbs.; max. tariff, 13c.; min. tariff, 9c.

Do., moist, per 100 lbs.: max. tariff, 7½c.; min. tariff, 5c.

Chemical, per 100 lbs.: max. tariff, 22c.; min. tariff, 18c.

Germany.

Paper and pasteboard, unbleached or bleached, half stuff from rags, for paper-making, free.

Unbleached or bleached, half stuff of wood, straw, esparto or other fibres for paper-making, per 100 lbs., 10.8c.

Gray blotting and yellow rough straw paper, per 100 lbs., 10.8c.

Pasteboard (except glazed pasteboard and leather board), slate paper and tablets thereof, not combined with other materials, emery and polishing paper, per 100 lbs., 10.8c.

Unlined packing, not otherwise specified, per 100 lbs.: max. tariff, 43.2c.; min. tariff, 32.4c.

Slotted packing paper, per 100 lbs.: max. tariff, 64.8c.; min. tariff, 32.4c.

Glazed pasteboard and leather board, press boards, per 100 lbs., 64.8c.

Printing papers, writing paper, blotting paper (other than coarse gray), tissue paper of all kinds, and paper prepared for accounts, labels, way bills, etc., per 100 lbs.: max. tariff, \$1.08; min. tariff, 3.2c.

Gold or silvered paper, paper with gilt or silvered patterns, perforated papers; also strips or bands of these papers; artists' cardboard, per 100 lbs., \$1.08.

Moulded work of *carton pierre*, combined or not with wood or iron, but not painted nor varnished, per 100 lbs., 3.2c.

Moulded work of *carton pierre*, painted or varnished, per 100 lbs., \$1.30.

Wires of paper, cardboard or papier mâché, per 100 lbs., \$1.30.

Wires of paper, cardboard, papier mâché, etc., combined with other materials, provided they cannot be classified under the heads of small ornamental wares, per 100 lbs., \$2.60.

Paper hangings, not gilt, silvered, bronzed, embossed nor velveted, per 100 lbs.: max. tariff, \$2.60 per 100 lbs.; min. tariff, \$1.94 per 100 lbs.

Paper hangings other than the foregoing, per 100 lbs, \$2.60.

Holland.

Pasteboard and cardboard, paper of all kinds; music paper, cartridge paper, gray packing paper, blue paper for grocers, etc., paper hangings; paper for bookbinders; Bristol board; sand or glass paper; register, blank or ruled; blue paper for confectioners, 5 p.c. ad val.

Italy.

Paper, white or colored in the pulp, unruled, all kinds, per 100 lbs.: max. tariff, \$1.32; min. tariff, \$1.10.

Do., do., ruled, \$1.76 per 100 lbs.

Do., envelopes and paper cut in rectangular forms for making envelopes, \$2.21 per 100 lbs.

Colored, gilt or painted, including paper bleached for photography or lithography, per 100 lbs.: max. tariff, \$3.95; min. tariff, 3.31.

Wall paper, per 100 lbs.: max. tariff, \$3.95; min. tariff, \$3.51.

Blotting paper, per 100 lbs.: max. tariff, \$1.32; min. tariff, \$1.10.

Packing, coarse and rough, including straw paper, uncolored, not calendered, per 100 lbs.: max. tariff, 70c.; min. tariff, 26.3c.

Pasteboard—

(a) Common, per 100 lbs.: max. tariff, 70c.; min. tariff, 17.5c.

(b) Fine: (The respective duties on paper.)

Manufactures of paper and pasteboard—

(a) Spindles and bobbins for spinning mills and looms, \$2.63 per 100 lbs.

(b) Not specially mentioned, \$7.02 per 100 lbs.

Minimum tariffs on—

1. Buttons of papier mâché and similar substances, \$4.38 per 100 lbs.

2. Pasteboard cut in pieces and bent, for manufactures of pasteboard:

(Duty on pasteboard, according to the respective quality, with an addition of \$1.05 per 100 lbs.)

3. Articles of cardboard or cellulose stamped out, compressed or hardened, with or without relief, \$3.51 per 100 lbs.

4. Other, \$6.14 per 100 lbs.

Wood pulp—

(a) Cellulose: max. tariff, 17.5c. per 100 lbs.; min. tariff, free.

(b) Other, including pulp of straw and other similar materials:

1. In a moist state, i.e., containing at least 50 p.c. of water, per 100 lbs.: max. tariff, 17.5c.; min. tariff, 4c.

2. In a dry state, per 100 lbs.: max. tariff, 17.5c.; min. tariff, 8.8c.

Japan.

Chinese paper of all kinds, 15 p.c. ad val., plus war tax, 5 p.c. ad val.

Wall paper: max. tariff, 15 p.c. ad val.; min. tariff, 10 p.c. ad val.

Printing, per 100 lbs.: max. tariff, 59c.; min. tariff, 43.7c.

Minimum tariffs—

Printing paper:

(a) Weighing not more than 24 lbs. per ream of 500 sheets, and measuring not less than 1.086 sq. inches per sheet; min. tariff, 30c. per 100 lbs.

(b) All other kinds of printing paper: min. tariff, 43.7c. per 100 lbs.

Paper, all other kinds: max. tariff, 15 p.c. ad val.; min. tariff, 10 p.c. ad val.

Pasteboard: max. tariff, 54.4c. per 100 lbs.; min. tariff, 10 p.c. ad val.

Strawboard, 15 p.c. ad val., plus war tax, 5 p.c. ad val.

Mexico.

Refuse and waste of paper and pulp of vegetable fibre in sheets for the manufacture of paper, not dyed, perforated at space not exceeding 3.9 inches, free.

Paper of all kinds weighing up to .1102 lbs. per 3.28 sq. feet; white paper containing more than 40 p.c. of mechanical wood pulp, and weighing more than

.1102 and not more than .3306 lbs. per 3.28 sq. feet, \$1.70 per 100 lbs.

White paper containing up to 40 p.c. of mechanical wood pulp, and weighing more than .1102 and not more than .3306 lbs. per 3.28 sq. feet, \$4.55 per 100 lbs.

Paper of dyed pulp, and all other paper n.e.s., weighing more than .1102 and not more than .3306 lbs. per 3.28 sq. feet, \$4.55 per 100 lbs.

Paper of the natural color of the pulp, weighing more than .1102 and not more than .3306 lbs. per 3.28 sq. feet, \$2.00 per 100 lbs.

Paper and cardboard of the natural color of the pulp, weighing more than .3306 lbs. per 3.28 sq. feet, \$1.36 per 100 lbs.

White paper and cardboard, weighing more than .3306 lbs. per 3.28 sq. feet, \$3.41 per 100 lbs.

Paper and cardboard of dyed pulp weighing more than .3306 lbs. per 3.28 sq. feet, \$2.73 per 100 lbs.

Paper cut in strips not exceeding 1 inches in width, \$5 per 100 lbs.

Paper cut in sheets of less than 17 inches on any of its sides, ruled paper and water-marked paper, \$7.50 per 100 lbs.

Paper with monogram, letter head printed, engraved or lithographed, \$5 per 100 lbs.

Paper, mottled, colored, embossed or glazed, not bronzed, gilt or silver \$3.41 per 100 lbs.

Do., when bronzed, gilt or silvered whole or in part, \$6.82 per 100 lbs.

Do., combined with cloth of silk, or other material, n.e.s., \$12.50 per 100 lbs.

Norway.

Sheathing or roofing paper: tarred or asphalted paper; glass, sand, slate or emery papers; also press boards, 100 lbs.: max. tariff, 24.4c.; min. tariff, 12.2c.

Writing, drawing and unruled paper, and all paper suitable for writing or drawing purposes, white or colored in the pulp; varnished or

paper; ruled paper; also slips of paper for telegrams, per 100 lbs.: max. tariff, \$83; min. tariff, \$1.58.
 Envelopes, cut or gummed together; also those lined with tissue, per 100 lbs.: max. tariff, \$3.65; min. tariff, \$2.44.
 Blank forms, vignettes, labels, introduction cards, advertisements, parlor games and congratulation cards, per 100 lbs.: max. tariff, \$7.30; min. tariff, \$6.09.
 Printing paper of all kinds; white or colored blotting paper; filtering paper, per 100 lbs.: max. tariff, 48.8c.; min. tariff, 36.5c.
 Pasteboard, packing paper, cartridge paper, waste paper and compo-boards, per 100 lbs.: max. tariff, 61c.; min. tariff, 36.5c.
 Ornaments made of *carton pierre*, per 100 lbs.: max. tariff, \$1.46; min. tariff, \$1.22.
 Paper hangings, per 100 lbs.: max. tariff, \$3.05; min. tariff, \$2.44.
 Cochet and embroidery patterns, pattern books, ruled paper, visiting cards, paper bags, etc.; also paper covered with gauze or other tissues, frames with or without glass, and lacquered pasteboard, per 100 lbs.: max. tariff, \$3.05; min. tariff, \$1.83.
 Paper, bound or stitched, per 100 lbs.: max. tariff, \$4.26; min. tariff, \$3.66.
 Paper not otherwise mentioned, per 100 lbs.: max. tariff, \$1.22; min. tariff, 7.4c.
 Paper shavings and cuttings, free.

Sweden.

Pasteboard for sheathing and roofing purposes, etc., 12.2c. per 100 lbs.
 Other kinds, 61c. per 100 lbs.
 Note.—Cardboard composed of two or more sheets of paper united by means of any process whatever shall be dutiable as paper.
 Manufactures of cardboard, paper and papier mâché, not specially mentioned—
 Not lacquered, per 100 lbs., \$6.10.
 Lacquered, bronzed, gilt or silvered, per 100 lbs., \$24.37.

Note.—Bouquet paper combined with tissues, lace, ribbons or other similar materials, shall be dutiable as goods wrought, not specially mentioned.
 Polishing and emery, glass and flint paper, 10 p.c. ad val.
 Packing, waste and other coarse paper, unfit for writing, drawing or printing, per 100 lbs., 24.4c.
 Gilt, silvered or coated with any other metal, or colored otherwise than in the pulp, including paper coated with white color, called "glazed," and paper combined with cotton or linen tissues, per 100 lbs., \$2.44.
 Other, including ruled paper, per 100 lbs., \$1.22.
 Paper pulp, free.
 Paper hangings and borders, per 100 lbs., \$3.05.
 Envelopes for letters and paper bags, per 100 lbs., \$3.65.

United States.

Sheathing paper and roofing felt, 10 p.c. ad val.
 Filter masse or filter stock, composed wholly or in part of wood pulp, 1½c. per lb. and 15 p.c. ad val.
 Printing unsized, sized or glued, suitable for books and newspapers—
 Valued at not above 2c. per lb., 3-10 of 1c. per lb.
 Valued above 2c. and not above 2½c., 4-10 of 1c. per lb.
 Valued above 2½c. and not above 3c. per lb., 5-10 of 1 cent per lb.
 Valued above 3c. and not above 4c. per lb., 6-10 of 1 cent per lb.
 Valued above 4c. and not above 5c. per lb., 8-10 of 1c. per lb.
 Valued above 5c. per lb., 15 p.c. ad val.
 Provided, that if any country or dependency shall impose an export duty on pulpwood exported to the United States, there shall be imposed upon printing paper when imported from such country or dependency an additional duty of 1-10 of 1 cent per pound for each dollar of export duty per cord so imposed, and proportionately

for fractions of a dollar of such export duty.

Papers commonly known as copying paper, stereotype paper, paper known as bibulous paper, tissue paper, pottery paper, and all similar papers, white or colored or printed, weighing not over six pounds to the ream of 480 sheets, on a basis of 20 by 30 inches, and whether in reams or any other form, 6c. per lb. and 15 p.c. ad val.

If weighing over 6 lbs, and not over 10 lbs. to the ream, and letter copying books, whether wholly or partly manufactured, 5c. per lb. and 15 p.c. ad val. Crepe paper and filtering paper, 5c. per lb. and 15 p.c. ad val.

Surface-coated papers, not specially provided for in this Act $2\frac{1}{2}$ c. per lb. and 15 p.c. ad val.; if printed wholly or partly covered with metal or its solutions, or with gelatine or flock, 3c. per lb. and 20 p.c. ad val.

Parchment papers, 2c. per lb. and 10 p.c. ad val.

Plain basic photographic papers for albumenizing, sensitizing or baryta-coating, 3c. per lb. and 10 p.c. ad val.

Albumenized or sensitized paper or paper otherwise surface-coated for photographic purposes, 30 p.c. ad val.

Paper envelopes, plain, 20 p.c. ad val.

Decorated, etc., 35 p.c. ad val.

Writing, letter, note, hand-made, drawing, ledger, band, record, tablet and typewriter paper, weighing not less than 10 lbs. and not more than 15 lbs. to the ream, 2c. per lb. and 10 p.c. ad val.

Weighing more than 15 lbs. to the ream, $3\frac{1}{2}$ c. per lb. and 15 p.c. ad val.

But if any such paper is ruled, bordered, decorated, etc., it shall pay 10 p.c. ad val. in addition to the foregoing rates. Provided, that in computing the duty on such paper every 180,000 square inches shall be taken to be a ream.

Paper hangings and paper for screens or fireboards, and all other paper not specially provided for in this Act, 25 p.c. ad val.

All fancy boxes of paper, or of which paper is the component material of

chief value, or if covered with surface coated paper, 45 p.c. ad val.

Manufactures of paper or of which paper is the component material of chief value, not specially provided for in this Act, 35 p.c. ad val.

Mechanically ground wood pulp, 1-12 c. per lb., dry weight.

Chemical wood pulp, unbleached, 1-6 c. per lb., dry weight.

Bleached, $\frac{1}{4}$ of 1c. per lb., dry weight.

Provided, that if any country or dependency shall impose an export duty on pulpwood exported to the United States, the amount of such export duty shall be added as an additional duty to the duties herein imposed upon wood pulp, when imported from such country or dependency.



PAPER-MAKING IN CHINA

Rice straw is the commonest paper-making material in the Province "Ssuch'uan, which derives its name "Four Streams" from the four rivers Chialing, Flo, Min and Yaling, flowing through it from north to south into the great trade highway, the Yang-tsze, is the largest and probably the richest Province of the Empire of China. Rice straw paper, of which there are several qualities, is used for wrapping goods, the manufacture of fire crackers, making paper money, so much in demand at all funeral ceremonies, for squills, and for a variety of other purposes. The straw is made up into bundles and steeped with water in a concrete pit for a month, when it is taken out and well washed.

The water in which it has been steeped is removed, and the straw is spread in layers in the pit, each layer being thoroughly sprinkled with slaked lime water containing one catty (11-13 c. (133 1-3 pounds) of soda to each 100 c. (133 1-3 pounds) of lime. There it remains for twenty days. At the end of this period the straw has been reduced to a pulp, which has sunk to the bottom of the pit. The surface water a

as possible of the lime are removed and the pulp is taken out, placed in a steamer and steamed with 1 per cent. weight of soda, when it is ready to be made into paper.

A quantity of the cold pulp is placed in a trough of cold, clean water, to which is added some mucilage extracted from the Hibiscus Abelmoschus, a wild plant cultivated in Ssuch'uan, and a fine oblong bamboo frame, the size of the desired sheet of paper, held at the two corners by a workman, is drawn down ends and diagonally into the liquid contents of the trough. The contents are well stirred before the frame is used. It is then gently raised to the surface, when the film that has gathered on the bottom drops off as a sheet of moist paper when the frame is turned over. This paper is kiln-dried and made up into bundles for market.

The following, according to Consul-General Hosie, is the method employed in making the paper money, or paper cash, referred to above. The trunk of a tree six feet or more in circumference and about six feet high, set up in a yard of a shop, is the usual sign-board of a paper cash factory. Standing on a scaffolding, which brings his hands well above the top of the trunk, a man takes a bundle of this coarse paper, several inches thick and about six inches square, and with a wooden mallet, beats it exactly the same as that used in finer paper-work in England, hammers an iron chisel, consisting of a central pointed iron spike with two sharpened oblong scoops on either side, through the paper till the spikes and scoops are in the trunk. This he repeats in parallel lines all over the bundle till each side is covered with cash-shaped perforations, consisting of a round centre and two half-moon shape slits, held together by the paper between the scooped openings.

The sheets are always used whole, and no attempt is even made to subdivide them into the cash which they represent, but the paper is so cheap that a Chinese does not think it worth while to study economy in this mat-

ter. Sheets of paper cash are scattered on the roadway in front of the coffin when being borne to the grave, and burned at the grave itself after the burial has taken place. This paper is also moulded with tin into the shape of sycee, and it also goes largely to make up the flimsy sedan chairs which are burned at the grave as offerings to the departed.

Two kinds of bamboo are used in Ssuch'uan for the manufacture of paper, the "Tzu Chu" and the "Chin Chu." They must be tender stems, usually of the same year's growth, and in no case must they be more than two years old. They are cut into lengths of eight feet to suit the size of the concrete pit, where they are steeped in bundles with cold water, and heavily weighted with stones. After three months they are removed, opened up and well washed. They are then stacked in layers, each layer being well sprinkled with lime and water, containing about two pounds and a half of soda to every 133 pounds of lime. After two months they are well retted. The lime is then washed out, and they are steamed for fifteen days with three pounds of soda to every 130 pounds of the fibrous mass, which, on removal from the steamer is thoroughly rinsed with cold water. It is then placed in a concrete pit and reduced to fine pulp with wooden rakes. After this it is ready for conversion into paper.

A quantity of the pulp is put into the trough, with cold water and mucilage from the Hibiscus referred to above, as in the case of the coarse straw paper. The whole is thoroughly stirred, and the frame passed into the trough and raised with the film of paper in the usual way. This paper is much finer, whiter, thinner and more expensive than straw paper. There are, of course, various qualities used for different purposes—from papering windows to fine writing and note paper. Much of this paper is colored on one side as well as dyed, and very often note or card paper is glossed with white wax to give it a smooth, polished surface. Paper is manufactured all over the Province of Ssuch'uan, but the great

centres for bamboo paper are Mien Chu Hsien, Chiung, Chou and Chia-Chiang Hsien, while Lu Chon, on the Yangtsze, west of Chungking, produces very large quantities of straw paper.

The *Broussonetia papyrifera*, or paper mulberry, attains to the dimensions of only a bushy shrub, but no attempt is made in the Provinces to manufacture paper from its inner fibrous bark. The tough "bark paper," or "Pi Chih," made from this plant, and so extensively used in China, comes from the Province of Kueichon. There is one prominent use to which this light, pliable, tough paper is put in Ssuch'uan. In all fur-lined and wadded garments, the chief desiderata are lightness, warmth, and the protection of the material lined from being frayed by the skin or wadding. As is well known, a fur is usually made up of a number of skins sewed together, and these seams present an uneven surface, which would in time wear the silk or satin material lined. This wearing is prevented by inserting a layer of this paper, which presents an even surface to and preserves the material. Cotton and silk garments are treated in the same way when there is a risk of unevenness proving injurious.

Manchuria produces a considerable quantity of window paper for local consumption. When the long winter comes the window sash, or frames, are pasted over with paper, and to meet this requirement the Chinese in Manchuria resort to the so-called window paper, which is made almost entirely from hemp, and, more particularly, from old hemp ropes. The process of manufacture is simple. Heavy stone rollers are passed over the pieces of discarded rope until it is ground into small particles of fibre. This is then placed in vats and stirred. Later a large sieve is placed in the vat and slowly raised to the surface. The water trickles away and the thin substance that has been skimmed off is dried on the wall and becomes the window glass of the natives of Manchuria. This window paper retails in Niuchwang at the rate of 1.40 dols. Mexican, or approximately 70 cents gold, for 190 sheets. In weight, 170 sheets

equal three catties, or about four pounds. This would make the retail price of Manchurian window paper in the neighborhood of 15 cents gold per pound, or approximately 42 sheets 20 inches square. Samples of Manchurian giant millet, a staple native food product of the Province, have been shipped to Edwin Atkinson, Boston, Mass., for the purpose of examining into the paper stock qualities of the same. There is in Manchuria practically an inexhaustible supply of giant millet stalks, but these stalks by no means a valueless or useless quantity. Both man and beast eat the seed of the giant millet of Manchuria, and the stalks are used in various ways. *Journal of the Society of Arts.*



CUSHING CASE STILL IN COURT

The case of the Cushing Sulphate Fibre Company is still in the courts and appears to be as far from settlement as ever. On May 7th before the Supreme Court at Ottawa a motion to quash the appeal was made on behalf of the respondents, the claimant on proceeding to wind up the company and the liquidators appointed under the winding up order by the judge of the Supreme Court in New Brunswick on the ground that within fourteen days after the rendering of the judgment for winding up, proceedings for the appeal to the Supreme Court of Canada ought to have been commenced, that there could be no appeal from a discretionary order of winding up, and that it did not appear from the record that there was a controversy exceeding \$2,000 involved upon the appeal. The answer by the appellant was that the statute did not require the appeal to the Supreme Court to be commenced within fourteen days, that the order was not merely discretionary, but an exercise of the ordinary jurisdiction of the Court and that there was over \$2,000 involved as the claimant's debt exceeding that sum and was contested and that half a million dollars in value was affected by the order. Judgment reserved.

Our PULPWOOD SITUATION IN NEW YORK STATE.

Editor "Pulp and Paper Magazine":—

Mr.—The last census of the United States shows that of the 763 paper and mill mills reported for the whole country 179 were located in the State of New York. This state ranked first, not only in the number of establishments, but also in the amount of capital invested, in number of wage-earners and wages paid, in cost of materials and in sale of products. The figures given by the census are as follows:—

Total	\$37,349,390
Wages paid	\$ 4,099,771
Number of wage-earners.....	9,268
Cost of materials	\$14,563,222
Value of products	\$21,418,285

The number of mills and the output has much increased since the date of the last census. Only for pulp mills, mechanical and chemical, "Lockwood's Directory" for 1905 gives the following statistics:—

	No of mills.	Ground wood, cap. in lbs.	Sulphite fibre, Daily cap. in lbs.
Double Chasm	2	46,000	....
Double Forks	2	20,000	100,000
Malton Spa	1	....	100,000
Heater Falls	2	64,000	....
Lake River	3	92,000	....
Iron's Station ...	1	60,000	....
Conville	4	92,000	....
Yorkville	1	250,000	....
Nottingham	1	....	60,000
Cambridge	4	118,000	....
Union Falls	1	20,000	....
Appleton	2	90,000	....
Quaker	1	12,000	....
Port Jervis	1	36,000	....
Jeffries	2	260,000	70,000
Butler	3	23,000	60,000
Waverlyville	1	40,000	....
Wells Mills	1	50,000	....
Deerpark	1	12,000	....
Ward	1	25,000	....
Edward	2	140,000	160,000

Fort Miller	1	30,000	....
Fulton	2	128,000	120,000
Fullerville	1	16,000	....
Glenfield	1	12,000	....
Glen's Falls	1	150,000	....
Great Bend	1	20,000	....
Greenwich	1	12,000	....
Greig	1	4,000	....
Hadley	2	47,000	....
Hannawa Falls	1	200,000	....
Herring	2	80,000	40,000
Hewittville	1	50,000	....
Hinckley	1	....	150,000
Lockport	5	110,000	84,000
Luzerne	1	2,000	....
Lyondale	2	90,000	....
Lyon's Falls	3	176,000	80,000
Malone	1	....	50,000
Mechanicville	1	....	60,000
Middle Falls	3	69,000	....
Natural Dam	2	30,000	36,000
Newton Falls	2	20,000	40,000
Niagara Falls	4	250,000	92,000
Norfolk	2	100,000	40,000
Norwood	1	60,000	....
Oswegatchie	1	40,000	....
Palmer	2	200,000	120,000
Piercefield	2	64,000	77,000
Plattsburgh	3	86,000	....
Port Leyden	1	16,000	....
Potsdam	2	8,000	50,000
Pyrates	2	20,000	50,000
Rochester	1	40,000	....
Raymondville	1	40,000	....
Sandy Hill	3	120,000	150,000
Schuylerville	2	70,000	....
South Edwards	1	20,000	....
Ticonderoga	2	144,000	....
Thomson	1	30,000	....
Warrensburgh	1	40,000	....
Watertown	5	216,000	60,000

Total108 4,272,000 1,849,000
= 2,136 tons. 925 tons.

If you multiply those daily quantities by 300, the number of working days in the year, you find a product of 640,800 tons for ground wood, and 277,500 tons for sulphite and sulphate fibre. Calculating on the very conservative average of one cord of spruce for ground wood and 1¼ for sulphite fibre, it takes 987,675 cords of spruce a year to manufacture

those quantities of ground wood and sulphate fibre. Supposing an average growth of ten cords of pulpwood, the supply for the pulp mills of the State of New York strips every year 98,767 acres of woodlands from this spruce growth.

How long can the spruce forests of New York supply this demand?

For certain reasons which are not clear at first sight, the United States census of 1900 does not give the forest area in each state, but gives only mere valuations of the quantity of standing timber. In 1896 Professor Fernow, an authority on forestry matters, estimated 5,000,000,000 feet, board measure, the total stand of conifers in the State of New York. Mr. Henry Gannett, who had charge of that part of the census relating to lumber, says that these figures are plainly too low, but carefully avoids giving any figures as to the exact quantity. It appears evident that if some body is wrong in this connection, Mr. Gannett is the man. He puts down at 3,000 feet per acre the average stand of spruce. At this rate, it would take 1,666,666 acres of forest lands to yield five billion feet.

By far the largest portion of the forests of New York is in the Adirondacks. These forests comprise an area of 3,226,144 acres. But this comprises lumbered, waste, burned, and denuded lands, wild meadows, improved lands and water which occupy an area of 1,158,654, leaving only 2,068,090 acres for the genuine forest. At 3,000 feet board measure per acre, this area could yield 6,204,270,000 feet, which is not far from Professor Fernow's estimate.

The pulp mills of this state have a yearly capacity of 987,675 cords, or 592,605,000 feet, board measure. By the census of 1900, it appears that the supply for lumber or saw-mills was 244,966,000, which added to pulpwood makes a yearly consumption of 837,571,000 feet. At this rate the whole stand of spruce in the Adirondacks would be exhausted within seven years. And the stand of spruce in all the other parts of the State of New York would not last for three years.

If the exportation of pulpwood from Canada, especially the Province of Quebec, was prohibited, how long could the pulp mills of New York be kept running? What would those mills be worth? What would become of the \$37,349,390 invested in paper and pulp mills in the State?

Is it not reasonable to believe that rather than lose all, the proprietors of those mills would move part of their machinery to the Province of Quebec, where many of them hold large areas of woodlands?

—J. C. L.



NORWAY'S PAPER INDUSTRY

United States Consul-General Borwick reports from Christiania that the export of paper from Norway is gradually increasing. The exports for which official figures are given were in value \$2,179,000 in 1899 and \$2,817,000 in 1901. Official figures for 1905 are not as yet available, but if recent newspaper articles can be relied upon the export for that year was larger than for any previous year. The countries to which the largest exports were made in 1901 were Great Britain, Germany, and the United States. The finer grades of writing paper and bond paper are imported from Germany, England, the United States, and Belgium. Germany is Norway's most formidable European competitor in paper production. The larger German paper manufacturers have formed a syndicate, whose object it is to control the yearly production of paper and to regulate prices and output. It is claimed by Norwegian paper manufacturers that the prices charged by the Germans for export goods are from 10 to 15 per cent. lower than the prices charged in the home market. Two paper mills were built in Norway in 1905. The Norwegian paper manufacturers depend on their splendid water powers, easy access to timber, and wages paid employees for ability to meet competition and continue their business with profits. Some of their writing papers are now finding a limited but increasing market even in America.

FRENCH VIEWS ON ESPARTO.

I was an Englishman who conceived the idea of using esparto in the manufacture of paper, and who initiated and did much towards the development of the industry. Since 1867 it has been a recognized fact that esparto is an excellent raw material for paper-making, and that time production and manufacture brought about the development of natural resources. The success of the development left no room for doubt.

I would have been expected that the satisfactory results would have encouraged similar undertakings in France, especially when we remember that esparto is a raw material almost exclusively derived from French colonies and those colonies near at hand and easily accessible from our own ports.

In spite of this, French industry has remained indifferent to what was being successfully carried out abroad. She allowed her English competitors to establish a sort of monopoly in esparto papers, and, with increasing profits, to compete successfully with home manufacturers on such a scale that the French paper-maker who purchases esparto papers must go to English houses for them. He may buy esparto paper in Algeria, or as printings, but it comes from England, whence the raw material was exported, to be returned again in manufactured form to our colony. Esparto exported from Algeria to other European countries, as it is used for other purposes besides paper-making. We may conveniently classify the uses to which esparto is put according to the element to which the raw fibres are selected. Thus esparto is used for basket work, for making the soles of shoes, for tying up plants and flowers; for all these purposes raw fibre is used. For other purposes, such as weaving, rope-making and in upholstery, the material undergoes a mechanical treatment in order to separate the fibres.

In paper-making the esparto must undergo a still more radical treatment, involving a chemical process to complete the separation of the fibres and

convert the grass into a pulp. Of course, for some purposes a better quality of grass will be required than for others. For basket work, for instance, long supple fibres are chosen, whereas short lengths are suitable for paper-making. The latter are derived almost entirely from the Province of Oran, and form some 90 per cent. of the total exports. The greater part of this goes to England. It may be noted that practically the whole of the English consumption is comprised of esparto for paper-makers, while the exports to Belgium, Germany, Spain, and Portugal consist of esparto for the manufacture of basket work, rope, etc. The exports to France include both classes of material, in about equal quantities, and together amounted to about 4,500 tons during 1904. The writer draws a striking contrast between the 2,500 tons imported into France for paper-making and the 80,000 tons taken by the English for the same purpose.—*La Papeterie*.



RESTRICTING OUTPUT OF PULP-WOOD.

The Province of Quebec Pulp-wood Association held a special meeting at Sherbrooke on the 3rd inst.

The principal object was to agree upon some way of curtailing the production of pulp-wood in the Province. The question was discussed at length by the different representatives of the pulp-wood industry present and resulted in the adoption of a resolution which is to be signed by all members of the Association and interested parties, and which exacts that each of those who sign will make no advances of money on pulp-wood, and the pulp-makers will themselves reduce the quantity they make on their own limits. In this way the quantity made and shipped in the Province will at once be ascertained.

The members in general gave as a reason for this move that on account of over-production the United States pulp-makers were finding fault with the

best of wood, culling for knotty wood, barky wood and dirty wood, such wood as they used to accept without complaint, which in some cases did serious injustice to shippers. Several other matters were also discussed.

H. M. Price, president of the Association, presided, and E. C. Gatien acted as secretary. Those present were: F. N. McCrea, O. C. Morrisette, Sherbrooke; B. Quinn, Windsor Mills; G. E. Nadeau, Stanford; N. Demers, St. Agapit; Ayton Cromwell, Cookshire; Thomas H. Van Dyke, West Stewartson; N. T. Turgeon, Beauceville; George Hilliard, Colebrooke; S. E. Watts, Beecher Falls; E. C. Gatien.—*Sherbrooke Examiner.*



Mill Matters

A number of the paper-makers who left the employ of the E. B. Eddy Company, Hull, Quebec, in the strike two years ago have left for Paris, France, where they have secured employment.

The Imperial Paper Box Company has purchased the front building of the old Conboy factory at 485 King Street West, Toronto. The lot has a frontage of 44 feet and a depth of 172 feet, and the purchasers intend to put up a new front and use the building for manufacturing purposes.

H. B. Donovan, of the Canada Paper Company, has purchased the three storey brick building at 184 Adelaide Street West for \$6,000. The building will be used as a publication office for the "Canadian Poultry Review" and the "Canadian Kennel Gazette" Publishing Company, in which Mr. Donovan is largely interested.

The new sulphite plant of the Imperial Paper Mills at Sturgeon Falls, Ont., is making rapid progress. The local "Advertiser" says the new wet machine room was run for the first time on the 30th April in connection with the ground wood plant, all the machinery working easily. The acid-making plant is now

completed, and is to be operated this month. The tunnel to the bark rock has been completed, and the company is only waiting delivery of the motors in order to have this in operation. In connection with this tunnel the company have widened the approach to the bridge, making the entrance to the approach safer, and improving the part of the town.

The purchasers of the Metabetchou Pulp Company's mills, located at Andre, Que., are: F. X. Drolet, Blouin, E. Tanguay, Napoleon Drolet, L. Letourneau, George Ball, J. E. Martineau, J. Bilodeau, Jos. Samson, A. Valleraud, Emil Moissette, J. B. Ouellet. The new owners intend to increase output.

The mills and plant of the Royal Paper Mills Company at East Annapolis, Quebec, which have been closed about a year are to be opened again and operated. Both the pulp mill and the paper mill are to be worked to their full capacity and operations are to begin at once. The company announce they will take back any of their former employees, giving them the position they occupied when the mills closed, provided such employees return during the month of May.

Reporting on the progress of J. Booth's new paper mill at Ottawa the "Journal" says: The proprietor has hastening the work all winter, installing machinery and getting things in readiness, but it is not likely that the mill will be put in operation till September or later. The new mill stands on the west side of Bridge Street, south of the lumber mill, and it is a long two storey structure of cement and brick, with a towering circular chimney 220 feet high which is seen for miles around. In the work of installing the machinery there is a gang of men engaged and they have a regular machine shop and blacksmith's furnaces going night and day. When it is started, the product of the Booth pulp mill now in operation will never lack for a consumer, though at present the product is disposed of as rapidly as turned out.

the case of cardboard in quantities of less than a full package the additional charge will be 10 per cent. This agreement has been signed by the following firms:—Hart & Riddell; The Brown & Co., Limited; W. J. Gage & Co., Limited; Canada Paper Co., Limited; The Hunter & Ellis Co., Limited; The William Munroe Co., Limited; The E. B. Reid & Co., Limited; The Buntin Reid & Co. Hubbs & Howe Co.



By T. A. De Cew, B. A. Sc.

in "Wochenblatt für Papierfabrikation,"

No. 9 of your paper has in the question column, page 637, an enquiry in regard to sizing of envelope paper glazed on one side. The same difficulty occurred to me, but I very soon solved it.

Before the introduction of the very excellent Erfurt Emulsifier into our industrial world, rosin soap was very largely made with an excess of soda. The universally accomplished results and savings proven by cold figures caused me to procure this system also. I made my rosin soap in the same way as before, but with only 8 to 9 per cent. soda ash, and sometimes as low as 7 per cent. The emulsifying of this high free rosin size was easily accomplished with like patent emulsifier, and I was extraordinarily pleased with the lowering of the cost for sizing.

The last named soap (with 7 per cent. soda) was used for making imitation parchment and glazed rope papers, which were very satisfactorily sized. The next day brought on the machine a one-side glazed 40 gramme envelope paper, and the discovery of a paper-sized only on one side. The rough side was well sized, the glazed side allowed the ink to spread like blotting paper. That this phenomenon was not caused by too high a temperature on the large cylinders, was clear to me, because I knew that I had many times made sized papers with a still higher temperature. The next experiment gave a very interesting result. If one writes on the glazed side of the paper with heavy cross marks, the ink spreads very quickly, but does not penetrate easily. The writing test on the rough side shows no spreading, but a greater penetration of the ink than in the first instance.

From these observations, I would conclude: The use of a rosin soap cooked with 7 per cent. soda and containing 57.5 per cent. free rosin showed no difficulty with the imitation parchment and glazed rope paper, because the

long, well-beaten stock is able to hold the rather coarser particles of this very high free rosin size. In using this same size with the short stock, as was absolutely necessary for the envelope paper, the paper sheet cannot retain the rosin particles when passing over the suction, so that they are lost in the suction water. The upper side held the rosin because it was not able to get through the network of fibres of the paper sheet. It was in this way that the upper side, which is also the rough side was better sized than the lower.

The soap cooked with 9 per cent. soda is easier to emulsify and holds proportionately in the sheet than the relatively larger particles of the higher free rosin size. It shows that there are limits to the use of the last named soap, and that it must be adapted to the different kinds of stock and to the different conditions.



PERSONAL.

Hon. Peter White, M.P., of Pembroke, one of the best-known lumbermen in the Ottawa district, died at Clifton Springs, New York, on May 3rd.

R. W. Sindall, who was recently commissioned by the Government of India to make an examination of certain wood fibres suitable for paper-making, is on his way home, via Japan and Canada, and called upon the "Pulp and Paper Magazine." Mr. Sindall is visiting the Watertown district, and will go through the Holyoke paper-making region before sailing from New York for London. Mr. Sindall is the contributor of several technical articles in this magazine on pulp and paper-making.

Geo. D. Kelly, who was sent out by the testing house connected with the Manchester Chamber of Commerce some months ago to go into the question of moisture in pulp, is again visiting Canada to make further investigations for the same institution. This question of the proportion of water in pulp shipped to Great Britain is the most difficult problem in the export trade in

Canadian pulp, and it is to be hoped that Mr. Kelley may find some solution which will be acceptable to both shippers and importer.



CHEMICAL MARKETS.

Of the New York markets the "Paper Mill" reports:—Small increase in exports is noted and there is some demand. Sales are made for delivery within 90 days of high test on the basis of 75c. for light and 80c. for dense f.o. works.

For bleaching powder orders booked for early delivery at \$1.25 and for foreign and domestic. Brimstone good demand with slight advance. Prices quoted are: \$22.12½ for New York, Boston and Portland, and \$22 for Baltimore and Philadelphia. Sales of caustic soda are made for delivery any time during the year on the basis of \$1.75 to \$1.80 for high test, and higher for 60 per cent. f.o.b. works. Import is small. Small improvement in demand for rosins noted, but not enough to warrant an advance in price. Prices of paper-makers' rosin are as follows: E, \$4.35; F, \$4.45, and G, \$4.40, ex-ship or dock, New York.

In the English market the demand for low grade rosins has increased, but for high and medium qualities are quiet. Prices of China clay are in good demand with firm prices.



—Among the matters brought before the Dominion Railway Commission last month was a complaint by Stantec Limited, wall-paper manufacturers, Toronto, against both the Canadian Pacific and Grand Trunk in regard to rates for wall-paper. They complain that the charges for wall-papers when carried eastward from Toronto are greater than when carried from Montreal fact westward, and that this is a discrimination. This rate was put into effect in November. The Toronto Board of Trade also asked for a general reduction and revision of rates in Ontario.



Province of Quebec.

Department of Lands and Woods and Forests

FORESTS

Quebec, 24th March, 1906.

Notice is hereby given that, conform-
 ably to sections 1334, 1335 and 1336 of
 the consolidated statutes of the Pro-
 vince of Quebec, the timber limits here-
 inafter mentioned, at their estimated
 value, more or less, and in their present
 state, will be offered for sale at public
 auction, in the Department of Lands
 and Forests, in this city, on THURS-
 DAY, 21st day of June next, at TEN
 o'clock in the forenoon.

UPPER OTTAWA.

Loc A.

Range 2.—10, 50 m.; 11, 50 m.

Range 3.—11, 50 m.; 13, 25 m.; 17,
 18, 35 m.; 19, 27½ m.; 20, 22 m.

Range 4.—10 to 14, 50 m. each; N. ½
 of 5, 25 m.; north part of N. ½ of 16,
 15 m.; S. ½ of 17, 25 m.; 18, 50 m.;
 19, 0 m.; N. ½ of 20, 24¾ m.; S. ½ of
 20, 7½ m.

Range 5.—13 to 23, 50 m. each.

Range 6.—N. ½ of 10, 25 m.; N. ½ of
 14, 5 m.; 13 to 16 and 20 to 23, 50 m.

Range 7.—N. ½ and S. ½ of 6 to 13,
 5 m. each.

Range 8.—N. ½ and S. ½ of 6 to 13,
 5 m. each.

River du Lièvre, N.W. branch, Nos.
 1 and 8, 50 m. each.

River du Lièvre, middle branch, No. 7,
 40 m.; No. 8, 30 m.; No. 9, 65 m.

Upper Gatineau, 1, 2 and 3, 45 m. each;
 4 and 5, 50 m. each; 6, 42 m.; 7, 8 and 9,
 25 m. each; 10, 50 m.; 11, 35 m.; 12 to 20,
 50 m. each; 21, 70 m.; 22 to 30, 50 m.
 each; 31, 60 m.; 32 to 37, 50 m. each.

SAINT MAURICE.

Manouan 8, south, 30 m.; 9, north, 21
 m.; Upper Saint Maurice, 15, 60 m.; 16,
 38 m.; 28, 62 m.; 29, 35 m.; 30, 30 m.;
 31 and 35 to 43, 50 m. each; 44, 49 m.;
 45 to 66, 50 m. each.

SAINT CHARLES.

River du Moulin, 4, 12 m.; rivers aux
 Ecorces and au Canot, 39 m.; river aux
 Ecorces, 5, 29 m.; 6, 41½ m.; river au
 Canot, 1, 26 m.; Grande Pikauba, 2, 38½
 m.; 3, 38¾ m.

LAKE SAINT JOHN WEST.

Township Dablon, ranges 2, 3 and 4,
 2½ m.; township Déchéne, 18 m.

LAKE SAINT JOHN EAST.

Township Kenogami, No. 2, 2 m.

(Continued on Next Page.)

SAGUENAY.

River Malbaie, No. 17, 37 m.; township Callieres, 14 m.; rear township Callieres, 18 m.; Saguenay West, 1a, 10 m.; part of Saguenay, 3 and 4 west, 49 m.; Bergeronnes, 1 east, 25 m.; river Sainte Marguerite, No. 87, 24¼ m.

River Manicouagan: 8, 9, 13 to 28, each 50 m.

River aux Outardes: 2, 49 m.; 3, 45 m.; 4, 63 m.; 5, 50 m.; 6, 70 m.; 7 to 13, each 50 m.

Sault au Cochon: 1 east, 30 m.; 2 east, 36 m.; 3 east, 41 m.; 4 east, 33 m.; 4a east, 39 m.; 5 east, 40 m.; 5a east, 39 m.; 6 east, 60 m.; 7 east, 55 m.; 8 east, 46 m.; 9 east, 65 m.; 10 east, 68 m.; 2 west, 55 m.; 3 west, 50 m.; 4 west, 33 m.; 5 west, 38 m.; 6 west, 60 m.; 7 west, 64 m.

River Magpie: A, 52 m.; B, 42 m.

River Natashquan: 1 to 4, each 50 m.

River Piashte Bay: 1 to 8, each 25 m.

River Saint Augustin: 1 to 8, each 25 m.

GRANDVILLE.

Township Bégon, No. 1, 2½ m.

SAINT LAURENT DE METAPEDIA.

Township Assemetquagan, 63 m.; township Restigouches, river ranges 1 and 2, 1½ m.

RIMOUSKI EAST.

River Cap Chat, 1, 47½ m.; 2, 45 m.; 3, 45 m.; river Matane A, 48 m.

BONAVENTURE WEST.

Township Carleton, ranges 5 and 6, 3½ m.

GASPE WEST.

River Sainte Anne: D, 48 m.; E, 43¼ m.

GASPE EAST.

Grande rivière: T, 39 m.

GASPE CENTRE.

River Saint John: N, 37½ m.; O, 42 m.; P, 33 m.; Q, 28½ m.

CONDITIONS OF SALE.

No limit will be adjudged at less than the minimum price fixed by the department.

The limits will be adjudged to the highest bidder on payment of the purchase price, in cash or by cheque accepted by a duly incorporated bank.

Failing payment, they will be immediately re-offered for sale.

The annual ground rent of three dollars per mile is also payable immediately.

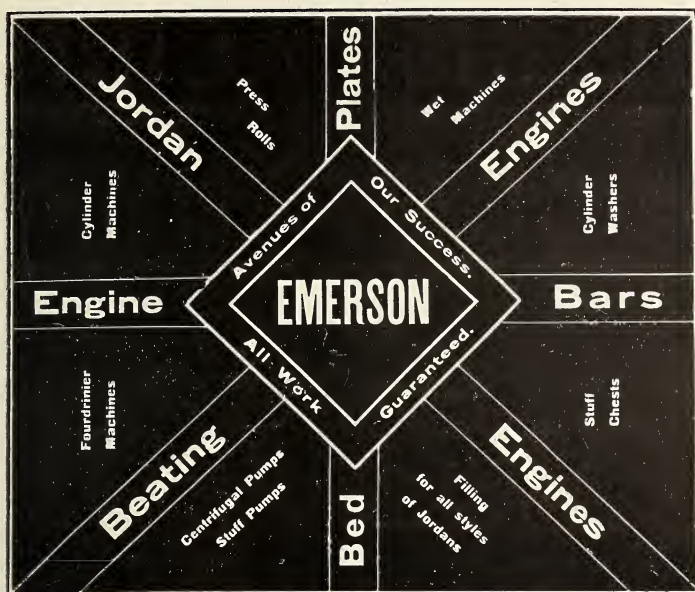
Those timber limits, when adjudged, will be subject to the provisions of timber regulations now in force which may be enacted hereafter.

Plans of limits offered for sale opened for inspection in the Department of Lands and Forests, in this city, at the office of the Crown lands and by agents in the different agencies in which said limits are situated, up to day of sale.

* N.B.—No account for publication of this notice will be recognized if publication has not been expressly authorized to the department.

ADELARD TURGEON,
Minister of Lands and Fore-

EMERSON MFG. CO.



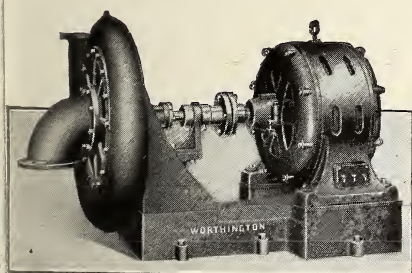
LAWRENCE, = = = MASS. ^F

Worthington Turbine Pumps,

Single or Multi-Stage.

For all heads and capacities.

Specially adapted for pulp mill use.



Worthington Turbine Pumps have no guards, no springs, no valves, no rubbing surfaces, no reciprocating parts.

John McDougall Caledonian Iron Works Co., Limited, Montreal.

BUILDERS FOR CANADA.

DILLON MACHINE

COMPANY

BUILDERS OF

PAPER MILL
MACHINERY

FROM NEW DESIGNS

Beating and Washing Engines, No. 1 and No. 2. Refining Engines, Stuff Pumps, Single, Double and Triple, all sizes, fitted with the Dillon Patent Valve Seating, Wet Machines, Stuff Chests, Horizontal and Vertical, all sizes, Single and Double Paper Cutters, Backstands, Dillon Patent Calender Doctors and Feeds, Jordan Filling, Roll Bars, Bed Plates and Cutter Knives.

OFFICE AND WORKS

LAWRENCE, MASS., U.S.A.

MIRAMICHI PULP & PAPER CO., Limited.

CHATHAM, N. B.

Manufacturers of High Grade Easy Bleaching

Sulphite Pulp

Suitable for Writing and Book Papers

LOMBARD & CO.

MANUFACTURERS AND IMPORTERS OF

Pulp Stones and Grindstones

OF EVERY DESCRIPTION.

QUARRIES at NOVA SCOTIA, CLIFTON, BAY DE CHALEUR, NEW
BRUNSWICK, under our own management.

OFFICE AND YARD:

236 and 238 A St., Boston, Mass., U.S.A.

WE ARE THE ONLY MANUFACTURERS MAKING A SPECIALTY OF
HAND-FINISHED GRINDSTONES.

Specially Selected GRIT for Paper Knife Grinding.
SPECIAL SIZES CUT TO ORDER

the Genuine English Newcastle Stone UNEQUALED BY
ANY OTHER STONE
MANUFACTURED.

FOR WOOD PULP GRINDING.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,

Ejector Vacuum Pumps — Bertrams Limited — Patent.

DR. C. WURSTER'S Patented Pulping Engines and Kneader

OVER 200 SOLD

FOR PULPING-UP

Dry Wood Pulp, Machine "Broke," Old Paper Stock Waste Papers.

MADE IN THREE SIZES TO PULP THREE, SIX
AND NINE TONS DRY WOOD PULP IN
TWENTY-FOUR HOURS. — FIVE, EIGHT AND
TWELVE HORSE POWER REQUIRED.

£125, £150 and £200 c.i.f. U.K. Ports.

Beaters and Edge Runners can be filled in from one to two minutes if the pulp is first disintegrated by one of the Wurster Engines, while the output is larger with the same power. These Engines do four times the work of stones, and neither shorten, affect the crease, or wet the fibre in any way, nor change the color or the sizing. They can also be used for Kneading Clay and other Fillers, and Bleaching Powder.

For full particulars apply to

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.

ENGLAND.

There was a small fire in the boiler house of the Brompton Pulp & Paper Co., Bromptonville, Que., last month. The promptitude of the employees averted a serious loss.



TENDERS FOR Pulpwood Concessions.

Tenders will be received by the undersigned up to and including the 18th day of April next, for the right to cut pulpwood on certain areas tributary to the Montreal River, in the District of Nipissing, the Nepigon River in the District of Thunder Bay the Rainy Lake, the Wabigoon River and the Lake of the Woods, all in the District of Rainy River. Tenderers should state the amount they are prepared to pay as bonus in addition to such dues as may be fixed from time to time for the right to operate a pulp or pulp and paper industry on the areas referred to. Successful tenderers will be required to erect mills on the territories and to manufacture the wood into pulp in the Province of Ontario.

Parties making tenders will be required to deposit with their tender a marked cheque, payable to the Treasurer of Ontario, for 10% of the amount of their tender, to be forfeited in the event of their not entering into agreements to carry out conditions, etc. The highest or a tender not necessarily accepted.

For particulars as to description of territory, capital required to be invested, etc., apply to the undersigned.

HON. F. COCHRANE,
Minister of Lands and Mines,
TORONTO, ONT.

NOTICE

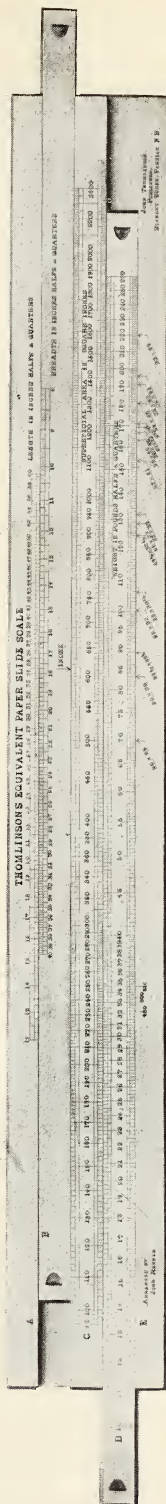
The time for receiving "Tenders for Pulpwood Concessions," above announced has been extended to 18th May, 1906.

Machinery For Sale.

FOR SALE—Two new Black Clawson Locomotive Engines. Inlet 5 in., outlets 4 in., cone 2 ft. wide, 4 ft. long. Length over all 14 ft. 8 in. Double bearings on driving end. Apply B. C. Pulp and Paper Magazine, Toronto, Canada.

YOU NEED IT

For calculating the relative weights of different sizes of paper and similar calculations employing "the rule of three."



Price in Waterproof Cardboard, \$3.50 each.
Price in Extra Finished Boxwood, \$15.00 each.

Write now for booklet.

RITCHIE & RAMSAY, Limited, - 84 WELLINGTON STREET WEST, TORONTO, CANADA.

PULP AND PAPER MARKETS.

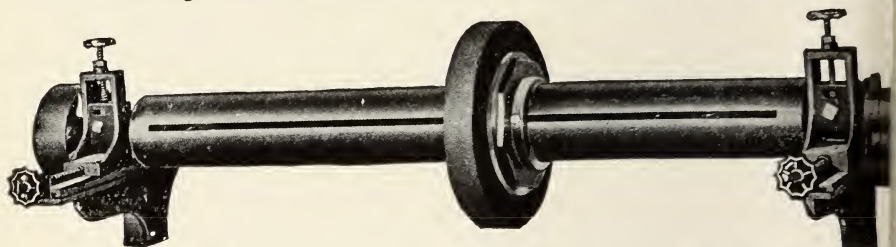
Toronto, May 14th.

The pulp market is quiet and the demand for export has fallen off for the present. Most of the mills making for export are, however, running on contracts, and the home market is in fairly good shape. Ground wood is quoted at \$12 at mill in Canada, and sulphite at

\$33 delivered at mill. This means \$19 to \$22 delivered at mills in United States.

The "Paper Mill" reports the New York markets as follows:—The local market continues peculiar. Large orders are scarce and small orders abundant. Local dealers and jobbers continue to hold off buying, believing prices will be lower, while manufacturers insist prices will be advanced. Some manufacturers are willing to book orders at the present low prices, but, as stated above, buy

"The Roy Patent Calender Roll Grinder"



B. S. ROY & SON, - Worcester, Mass. U.S.

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders
Pumps, Heaters

F. H. DAVIS & CO

161 Devonshire St.,
BOSTON, - - MASS.

holding off in anticipation that when summer dullness is on they will buy at their own prices. Imports of paper are large and exports good. Imports of rope and other materials are fairly firm and prices very firm. A strong demand for nearly all grades of foreign paper prevails. Prices are as follows:—Domestic bleached sulphite, to 25¢; domestic unbleached sulphite, \$1.85 to \$2; foreign bleached sulphite (N. Y. or Boston delivered), to \$3.40; foreign unbleached sulphite, \$2.25 to \$2.40; domestic soda fibre, to \$2.30.

The paper market prices are firm and the demand good. The great amount of house building throughout Canada has made an exceptionally good market for building papers. Fortunately both pulp and paper mills the water conditions are rather better than last year, the late snow falls in the north being kept up the rivers better than expected.

Latest reports from England show that chemical fibre is in good request, that there is a slackening in demand for mechanical pulps and prices are a trifle lower. Straw pulp and esparto are still firm.

RAG AND PAPER STOCK MARKET.

Montreal, May 14, 1906.

The only active feature in the paper stock market is the demand for manilla rope and bagging, chiefly for exportation to the United States. The winter accumulations of rags, coming into the market are depressing values a little, and cotton rags and roofing stock are easier in price, although a good packing of the latter is still worth \$18 per ton. Waste papers, especially the lower grades are selling very slowly, and pickers are being compelled to store them. New cotton cuttings are still in fair demand.

Quotations are as follows:—

No. 1 white shirt cuttings.....	\$5.50 to \$6.00
Light print cuttings.....	4.00 to 4.50
Unbleached cuttings	4.75 to 5.25
White shoe clips.....	4.50 to 5.00
Colored shoe clips.....	3.25 to 3.75
Domestic white rags.....	2.25 to 2.50
Blues and thirds.....	1.25 to 1.40
Roofing stock .....	.90 to 1.25
Waste papers .....	.35 to .40
Manilla rope	3.25 to 3.50
Bagging	1.00 to 1.10

D'Oyley Mears & Co.,

PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
Robt Chambers, Queen Victoria Street,
London, E. C.

THE RIORDON PAPER MILLS, Limited.

Merritton and Hawkesbury, Ont.
Merritton Mill—Newspaper, Hanging
Paper, Wrapping Paper and Building
Paper and Sulphite Pulp.
Hawkesbury Mill—Sulphite Pulp.

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, 82 Beaver Street, New York.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway)	..	Kirkegaden No. 20.
GOTHENBURG (Sweden)	..	Lilla Kyrkogatan No. 20.
MANCHESTER	..	Guardian Buildings (opposite Exchange).
LONDON	.. .. .	77a Queen Victoria Street, E.C.
PARIS	.. .. .	Rue de Londres No. 29.
ANGOULEME (France)	..	43 Rue Louis Desbrandes.
LYONS	.. .. .	54, Cours Gambetta.
MILAN	.. .. .	24 Via Solferino
TOLOSA (Spain)	.. .. .	18 Calle San Francisco.
NEW YORK	.. .. .	99 Nassau Street.
ST. PETERSBURG	.. ..	Little Podjascheskaja House, 4. Qu. 16.

Telegraphic Address :

“WERTHEIMO, HAMBURG.”

**PARKER,
HIPPER,
PAPER-CUTTER**

MACHINE KNIVES

Of Every Description.

The Peter May Knife Co., Limited, Galt, Ont.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.

DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.



JOHN KNIGHT & CO.,

CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents
for the ...

L.G.V., W.F.,



and other
Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

JULIUS FISCHER, Maschinenfabrik

gegr. 1838.

Nordhausen am Harz

ca. 200. Arbeiter.

supplies as a long years and only specialty all machinery and complete installations for making surface-coloured (stained), coated, printed papers, Chromo, Art, Baryta Papers. For the preparation of gummed and marble papers. Wall paper printing and all auxiliary machinery, of the latest designs and modern construction.

First class references from all parts of the World

—Le Moniteur de la Papeterie," in a
article on the opacity of thin
ous, referred to the well-known Ox-
ndia paper. It was stated that at-
ms on the Continent to imitate the
ree of this paper have been success-
that fine thin papers are now pro-
which are opaque in spite of be-
in. This effect, however, in the
of the Continental makes was pro-
by the addition of carefully se-
loading materials, which have the
advantage of making the paper very
heavier than the English India

paper, which has never been successfully
imitated on the Continent.

—An Ontario charter has been granted
to the Mines Publishing Company, Ltd.,
to publish the magazines dealing with
mines and mining, and to carry on the
business of book-binders, lithographers,
designers, and kindred trades. Head-
quarters in Toronto; capital \$40,000.
John Michael Ferguson, James Edward
Day, James John Harpell, Edward
Vincent O'Sullivan, Amy Albina Day are
the incorporators.

STUFF PUMP

This pump is made in three sizes, 5", 6" and 8".

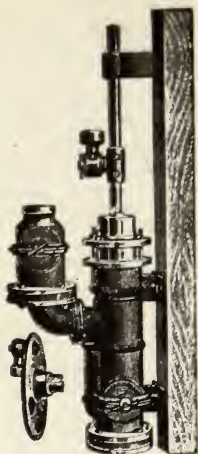
The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by

T. McOUAT & SON, Lachute, Que.,



MAPLE LEAF
STITCHED COTTON DUCK
BELTING
DOMINION BELTING CO. LTD.
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of

**GRADED RAGS, PAPER STOCK
ROPE BAGGING, ETC.**

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction Boards.
Mills at Sault au Recollet, P.Q.

ATTERBURY BROTHERS, Incorporated
Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

WIRE ROPE

All kinds and sizes, and for all purposes. Standard and Lang's Patent Lay.

PRICES RIGHT.

Rope Fittings.

PROMPT SHIPMENTS

Rope Grease.

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

**Guaranteed the most serviceable and efficient
of any built.**

**Modern Designs, New Patented Ideas,
Used Exclusively by us.**

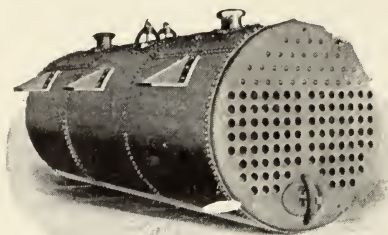
**Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.**

BELOIT IRON WORKS,

BELOIT, WIS., U. S. A.



BOILERS: — VERTICAL TUBULAR HORIZONTAL TUBULAR LOCOMOTIVE TYPES



MEDIUM OR HIGH PRESSURE

High Pressure Boilers
From 80 to 150 H. P. a
specialty.

We contract for complete
steam power plants. 'If in-
terested write for Bulletin.
No. 112.

THE JENCKES MACHINE CO., LIMITED

Executive Office
40 Lansdowne Street, Sherbrooke, Que.

Sales Offices: Toronto, Rossland,
Halifax, Vancouver,

Plants: Sherbrooke, Que.
St. Catharines, Ont.

SUCCESS GRINDERS



"SUCCESS" GRINDERS

We Manufacture a Full
Line of

Pulp Mill Machinery

We repair and
make over
Cylinder Mould

Write for Special
Catalogs.

The Waterous Engine Works Co., Limited
BRANTFORD, - CANADA.

“CHALK WHITE” COATED BOOK PAPER.

The best and whitest coated paper sold. — All regular sizes and weights in stock.

The Cover of this magazine is our Art Litho Cover, stocked in four cuts, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Windsor Mills, Que. = Montreal. = Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

S. YOUNG, = = Sole Agent for Canada.

413 St. Paul Street, Montreal.

F

“TURBINE WATER WHEELS”

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from
S. MORGAN SMITH Co.,
NEW YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company,	14,000 h.p.
Montreal Cotton Company,	7,000 h.p.
Sturgeon Falls Pulp Co....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

Wallace—Jaastad—Drewsen

ASSOCIATED INDUSTRIAL ENGINEERS AND CHEMISTS

JOSEPH H. WALLACE, C.E.,
M. Am. Soc. C.E., M. Can. Soc. C.E.

A. U. JAASTAD, M.E.,
Steam Engineer.

VIGGO DREWSEN, Ph.D.
Industrial Chemist.

Pulp and Paper Mills, Power Developments, Reports, Consultation.

OFFICES AND LABORATORIES—Temple Court Bldg., New York.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland, = = Mont

PULP AND PAPER MAGAZINE OF CANADA

VOL. 4.

TORONTO JUNE, 1906.

NO. 6.

FEATURES OF THIS NUMBER

Remarkable Developments
in the Pulp and Paper
Industries of Canada

Sale of the Montreal River
Pulpwood Concession to
John R. Booth

History of the suit of
William Price against
the Chicoutimi Pulp Co.

Progress of the Harms-
worths in Canada

New Companies organized
to build Pulp and Paper
Mills in Canada

The Largest Fourdrinier Wire Plant in the World

Eastwood Wire Mfg. Co

Belleville, New Jersey, U.S.A.

MANUFACTURERS OF

FOURDRINIER WIRES,
CYLINDER and WASHER WIRE CLOTH,
DANDY ROLLS,
CYLINDER MOULDS,
ROLLED BRASS SCREEN PLATES,
PERFECTION BRONZE (cast metal) SCREEN PLATES,
SUCTION BOX COVERS, COUCH ROLLS,
NAME PLATES,
PERFECTION BRONZE, DIGESTER CASTINGS and Y VALVES
for the manufacture of SULPHITE WOOD PULP,
PERFECTION BRONZE VALVES, bolts and fixtures, for SULPHITE PROCESS.
BRASS, COPPER and IRON WIRE and WIRE CLOTH of every description,
BABBITT METAL and all grades of ANTI-FRICTION METAL.
BRONZE and BRASS CASTINGS, from 1 oz. to 20,000 lbs. in weight.

N. B.—We manufacture all of the above articles, and are not merely dealers. Write for prices to

EASTWOOD WIRE MFG. CO.,

BELLEVILLE, NEW JERSEY, U.S.A.

The Largest Fourdrinier Wire Plant in the World

Foreign Phosphorbronze Fourdrinier Wires,

*Sulphite Pulps, Paper Stock and Rags,
Bleached Straw Pulp, also China Clay.*

JEAN FREESE, Vanderbilt Building
132 Nassau Street, **NEW YORK.**

FOURDRINIER MACHINE WIRES CYLINDER COVERS

Unequalled for Strength, Smoothness and Long Life.

GEORGE CHRISTIE, LIMITED

Ladywell Wire Works, **GLASGOW, SCOTLAND**

Agent—**THOMAS L. PATON**, 30 St. Francois Xavier Street, **Montreal**, who
holds stock for immediate delivery.

EDWARD J. WELCH, Pres. | **EMMONS CROCKER**, Vice-Pres. | **ARTHUR S. MORSE**, Secy.
ADAMS CROCKER, Treas. and Managing Director. | **HENRY W. S. DOWNS**, Supt.

Union Screen Plate Company of Canada, *Limited.*

Factory, **Lennoxville, Que.**, Offices: { **Lennoxville, Que.**
{ **Fitchburg, Mass., U. S. A.**

Screen Plates



The "Union" Bronze (best phosphorized cast metal) Plates
for Sulphite Mills. The Standard Rolled Brass Plates.
The "Union" Cast Metal Suction Plates.

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

We carry in stock a large supply of the different sizes of both metals and can fill large orders promptly.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

ESTIMATES ON APPLICATION.

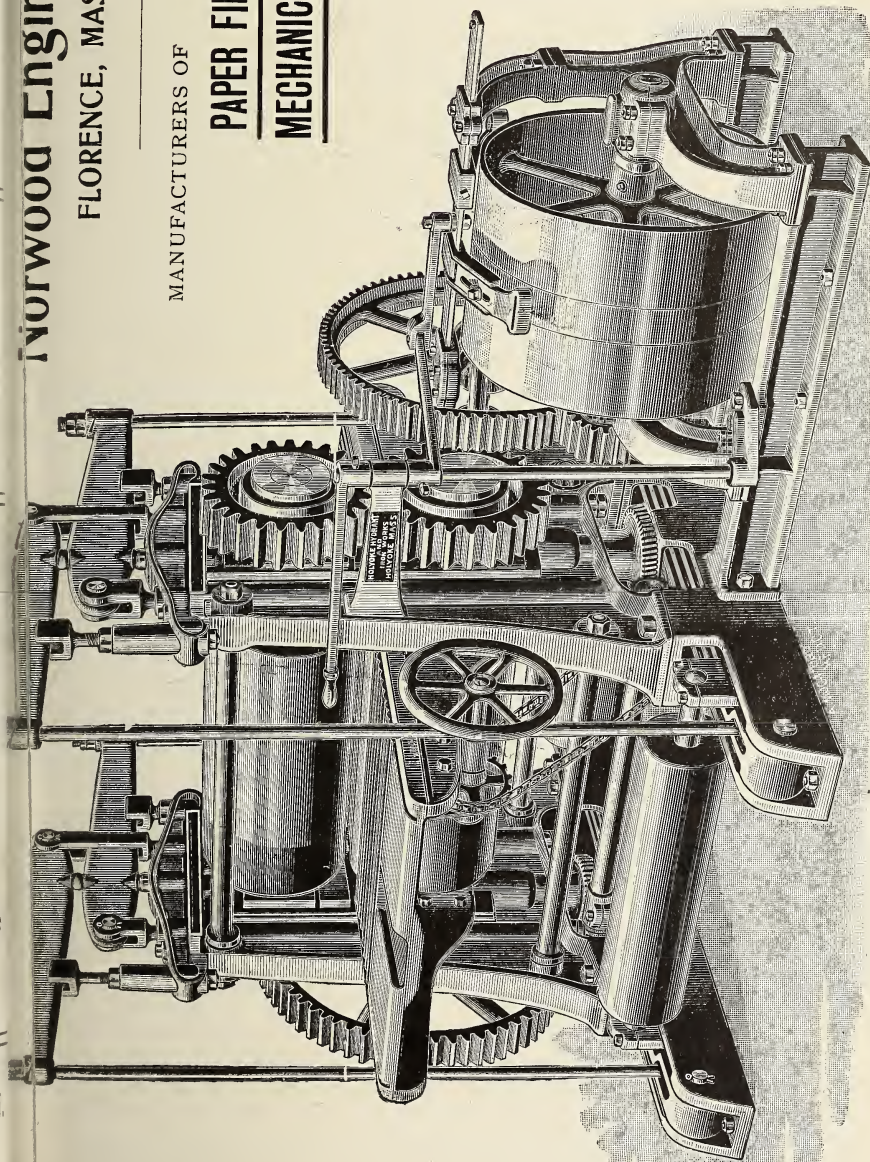
Norwood Engineering Co., FLORENCE, MASS., U.S.A.

MANUFACTURERS OF

PAPER FINISHING MACHINERY MECHANICAL FILTERS

Write for prices
and further
information.

(Plater for linen finish)



BERTRAMS, LIMITED

Papermakers'

Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermaking
embracing British, American and Continental Improvements

C. H. JOHNSON & SONS, Ltd.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rollers

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

Agents for Canada: C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL

INDEX TO ADVERTISEMENTS.

bury Bros.....	41	Knight & Co., John.....	45
Black Iron Works.....	47	Lea & Coffin, and H. S. Ferguson.....	9
Carson & Co., W. T.....	10	Lombard & Co.....	39
Carey & Jackson.....	4	Little, Arthur D.....	9
Ceram's, Limited.....	6	McDougall Caledonian Iron Works, The	
Black-Clawson Co., The.....	7	John.....	37
Re & Co., F.....	10	McQuat & Son, T.....	46
Turner, Mond & Co., Limited.....	50	Mears, D'Oyley & Co.....	43
Arila Paper Co.....	49	Miramichi Pulp & Paper Co.....	39
Canadian Rubber Co. of Montreal.....	8	Moore & White Co.....	33
Case, Gottheil & Overton.....	9	Norwood Engineering Co.....	5
Hattie, J.....	50	Paton, Thomas L.....	3
Hattie, Limited, George.....	3	Perrin & Co., Ltd., Wm R.....	42
Law & Co., F. H.....	42	Porritt & Sons, Joseph.....	10
McGraw, J. A.....	9	Porritt & Sons, Limited, Samuel.....	50
Mill Machine Co.....	38	Porritt Bror. & Austin.....	6
Union Belting Co.....	46	Pringle & Son, T.....	9
Wood Wire Mfg. Co.....	2	Pulp & Paper Trading Co., The.....	45
Union Mfg Co.....	37	Pusey & Jones Co.....	40
Frank & Moody.....	9	Quebec & Lake St. John Ry.....	8
Isler, Julius.....	—	Ritchie & Ramsay.....	45
Ree, Jean.....	3	Riordon Paper Mills, Ltd.....	43
Ree, Jean (Pulp Stones).....	32	Roy & Son, B S.....	42
Reeling, The B., Wire Co., Limited.....	46	Smith Co., S. Morgan.....	49
Reardon, Geo. E.....	34	Union Screen Plate Co.....	3
Reay, George F.....	9	Union Sulphur Co., The.....	43
Reidworth & Sons Co., Limited, Alfred.....	12	Vogel, C. H.....	9
Reynolds Co., Limited, Peter.....	45	Walker, J. R. & Co.....	46
Reynolds, J. H., & Sons Co.....	10	Wallace-Jaastad-Drewsen.....	50
Reynolds, R.....	50	Waterous Engine Works Co., Ltd.....	48
Reynolds & Sons, F. C.....	5	Wertheim & Co., A.....	44
Reynolds International Pulp Co.....	9	Whittaker, Richard.....	11
Reynolds Machine Co., Limited.....	12 & 48	Wilson, Paterson & Co.....	12
Reynolds & Sons, Limited, C. H.....	6	Winn & Holland.....	50
Reynolds & Co., A.....	11	Wurster, Dr. C.....	40
Reynolds Mill, Herbert S.....	9	Young, J. S.....	49

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.

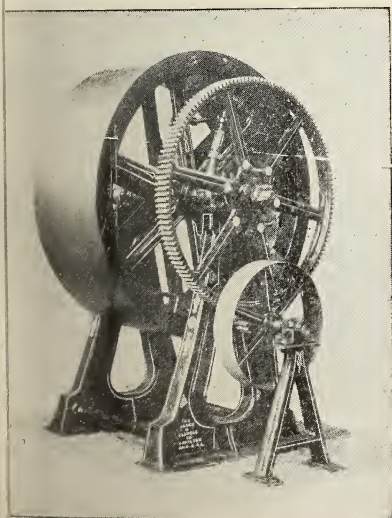
Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

from new patterns and designs embodying the latest improvements.

Foot-power Perforators.
3 Roller Ink Mills.
Evaporating and Drying
Machinery.

We Solicit Correspondence.



Honest
Value



Com-
plete
Satisfac-
tion

We Make a Specialty of Covering
**Couch, Press
and
Squeeze Rolls**
**For PULP and
PAPER MILLS.**

**Rubber Diaphragms
for Screens.
Deckle Straps.**

**Rubber Belting,
Packings, Valves,
Caskets, Fire,
Steam and Water
Hose, etc., etc.**

**WRITE US FOR ALL Your
Requirements in Rubber.**

**The Canadian Rubber Co.
Of Montreal Limited.**

SALES BRANCHES:

172 Granville Street, Halifax, N. S.
Imperial Bank Building, Montreal, Que.
Front and Yonge Sts., Toronto, Ont.
89 Princess Street, Winnipeg, Man.
402 Cordova Street, Vancouver, B. C.

D. LORNE MCGIBBON,
Vice-President and Managing Director.

**MOORE & WHITE SPEED
CHANGES.**

With this issue the Moore & White Company, of Philadelphia, one of the largest and most reliable firms building paper mill machinery in the United States begin an announcement regarding speed changes for paper machines, which have come into almost universal use. This speed change is guaranteed to drop any size of paper machine perfectly without loss of power, and is arranged to give any desired ratio of speed, allowing the variation to be made from the slowest to the fastest, or visa versa without stopping the machine.

The Moore & White Company builds a variety of paper-making machinery and other requirements for the paper mill trade. Moore & White patent friction clutches are used by many of the large paper machinery builders and engineers throughout the world. Not long ago this firm equipped a couple of very large paper mill plants in South America, and their machinery was selected by European paper mill experts, who chose the products of the leading makers in Europe and America to choose from.

This firm also has a large trade in Great Britain and America for their machinery for printing floor cloth and linoleum.



This Railway runs through Two Hundred Miles of the **Finest Spruce Forests** of America, through a country abounding in **Water Powers** suitable for **Pulp and Paper Mills** and other industries, and easy access to the **Steamship Docks** of Quebec.

ALEX. HARDY,
G.F. & P.A.

J. G. SCOTT,
General Manager

QUEBEC, P. Q.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT and ENGINEER
SPECIALIST IN
Pulp and Paper making. F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
101 Tremont St., Boston, Mass.
Designs, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and writes Burners for the Sulphite Process. F

GEORGE F. HARDY,

M. AM. SOC., M.E.
M. CAN. SOC. C.E.

Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of Mill Properties, Water Power Developments.
Mutual Reserve Building, - 309 Broadway,
NEW YORK

"Asbestine Pulp" Filler

Superior to any Clay.

Delivered price on application.

INTERNATIONAL PULP CO.

New York City, U.S.A.

T. PRINGLE & SON

Specialities:—Pulp Paper and Fibre Mills,
Hydraulic Developments and Electrical
Transmissions

409, 410, 411, 412 Coristine Bldg.,
MONTREAL. F

C. H. VOGEL

A. M. Can. Soc. C.E.

ENGINEER

OTTAWA, CAN.

WATER POWER

Paper, Pulp and Sulphite Fibre Mills

LEA & COFFIN, and H. S. FERGUSON, ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
Water Power Development and Trans-
mission. Steam Power Plants.

CORISTINE BUILDING, MONTREAL.

A. S. FAIRBANKS, Assoc. Mem. Can. Soc. C. E.
Assoc. Am. Inst. E.E.

H. A. MOODY, B.S., M.E.,
Assoc. Mem. Am. Soc. M.E.

FAIRBANKS & MOODY

Industrial Engineers
Paper and Pulp Mills
Hydraulic Development

150 Nassau St., New York.

J. A. DeCEW, B.A. Sc.

Chemical Engineer.

SUN LIFE BLDG., MONTREAL

Specialist in Soda Fiber and Paper Mill Chemistry.

Patented Processes for Digesting, Causticizing, Evaporation, Recovery.

Consultation.

Advice.

Reports.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

CHINA CLAY **ROSIN,**

Best Paper
Makers' Strained

Bleaching Powder. Soda Ash.
Ultramarine Blue.

STARCHES—*Highest Grade Pearl
and Potato.* FT

W. T. BENSON & Co., 164 St. James St., Montreal.

JOSEPH PORRITT & SONS

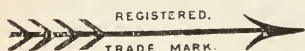
HELMSHORE NEAR
MANCHESTER

FELTS

and JACKETS FOR PULP and PAPER MILL

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes

Agents for the States and Canada,



F. BRÉDÉ & CO., - 240 Water Street, NEW YORK

Established 1864

Incorporated 1888

J. H. HORNE & SONS CO.,

LAWRENCE MASS.

MANUFACTURERS OF HIGH-GRADE

PAPER MILL MACHINERY

Beating and Washing Engines

"Jordan" Engines

"Horne" Improved Patent Engines

"Cloudman" Cylinder Washers

FOURDRINIER, CYLINDER & WET MACHINES

"Horne" Friction Cutters

Fan Pumps

Rag Knives

Cone Pulley Cutters

Stuff Pumps

Roll Bars

"Horne" Calenders

Calender Rolls

Bed Plates, Etc.

ORDERS FILLED ON RECEIPT

GET OUR CATALOGUE

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal

Sulphate Alumina

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

F

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, ===== MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y



127 BOARD OF TRADE BLDG., MONTREAL.

Agents for the United Alkali Co. of England

OFFER TO THE TRADE:

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.

F



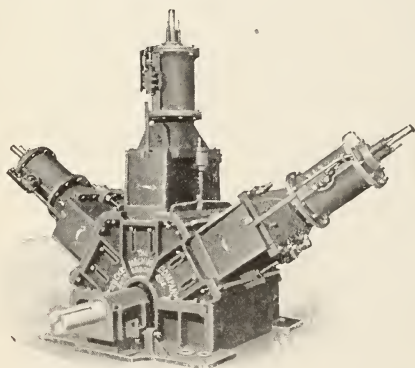
VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leather. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Hawksworth & Sons Co., Limited
Mill Engineers and General Furnishers.
551 St. James Street, - Montreal



PULP MILL MACHINERY

Grinders, Wet Presses
Screens, Barkers,
Cut-off Saws, Etc., Etc.

Contractors for complete Pulp Mill Plants including Water Wheels
Write for Catalog.

THE JENCKES MACHINE CO., LIMITED

TORONTO
HALIFAX

Head Office: SHERBROOKE, Que.
Works: Sherbrooke, Que.
St. Catharines, Ont.

ROSSLAN
VANCOUVER

THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 4.—No. 6.

TORONTO, JUNE, 1906.

{ \$1 A YEAR
{ SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canada pulp and paper manufacturers and the paper trade.

SCRIPTIONS: Canada, British Empire and the United States, \$1 a year; to Foreign Countries, 5s. a year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publisher's hands not later than the 15th of the month and, where proofs are required, 10 days earlier. Cuts should be sent by mail, not by express.

E. B. BIGGAR,
PUBLISHER

A. M. FISHER, Business Manager.

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

THE LAND FOR THE SETTLER.

Thoughtful Canadians are beginning to see another side to the immigration question. The character of the men we import upon our vacant lands in Canada will determine the future type of Canadians much more than will the quality of the people we gather in our cities. No stock raiser would deliberately select a shabby lot of cattle to breed from when he could get thoroughbreds at the same price. How much more carefully should we select when we are called upon to fix the type of the new nation in the North-West. James J. Hill, president of the Great Northern Railway, himself a Canadian born, spoke a few words of

good philosophy in striking phraseology the other day when addressing the Canadian Club at Otiawa. He said: "There's no difficulty in settling your Canadian North-West, but don't be in too great a hurry. Select the population. In every country population without land is a mob, and land without population a wilderness. The quality of the soil is of less consequence than the quality of the man who lives upon the soil." He went on to say that our educational institutions and our business integrity were of a good standard, and that the standard ought to be upheld and improved on, and that our unoccupied lands ought to be held for those who would make intelligent use of them. It is to be hoped that these words will be deeply studied by our legislators and that the reform of our immigration policy will begin at once. It is further to be hoped that the day is done of handing over large tracts of land to speculators instead of giving the benefit of cheap land directly to the pioneer settler. The revelations regarding land speculators, and the reckless alienation of public lands and money to railway companies show an extravagance and heedlessness of the public interests that makes Mr. Hill's compliment to our "integrity" sound like a sarcasm. Let us do more to deserve the good opinion which outsiders hold of us.

UNITED STATES TRADE WITH CANADA.

In the April number of the "Pulp and Paper Magazine" it was pointed out that one of the chief reasons why Great Britain did not secure a much larger portion of Canadian trade was that the British Government has no commercial agents in this country to keep their manufacturers and merchants posted on the requirements of the country.

The "American Economist," a New York trade and financial publication, in reviewing various phases of Anglo-Canadian vs. American-Canadian trade, has the following to say:

The agitators for "reciprocity" will find some facts, both interesting and instructive, in figures just prepared by the Bureau of Statistics of the Treasury Department, showing the trade of the United States with Canada, compared with the trade of Canada with Great Britain during the past eighteen years. The New England reciprocity advocates, who are specially urgent in their demands upon Congress for reciprocity with Canada, will find in these official figures some food for reflection.

It has often been shown that during the period when the United States had so-called "reciprocal" trade relations with Canada the Dominion was the party to the arrangement most benefited thereby. Under the old reciprocal scheme purchases in the United States of Canadian goods which entered into direct competition with American products steadily increased until they reached a figure of more than double of what they were when the arrangement was entered upon. While there was some increase in the sales of American goods in Canadian markets, the in-

crease was slight in comparison with the increase in sales of Canadian products in American markets.

Special efforts have been made in recent years by the Canadian Government to facilitate closer trade relations between Canada and Great Britain. Special discriminatory tariffs and preferences have been given to encourage trade between the Dominion and the Mother Country. During the same period the products of the United States have been subjected to the rate of the Canadian tariffs, and Canadian commodities have been subjected to the full rates of all tariffs known to the system since 1880. The Treasury figures show that under these trade arrangements of the United States and Great Britain, respectively, in the Canadian markets, the percentage of imports into Canada from the United States has increased from 42 per cent. in 1887 to 60 per cent. in 1905. During the same period the percentage of imports into Canada from the United Kingdom generally decreased from 42 per cent. in 1887 down to 24 per cent. in 1905.

The figures of actual trade show fully as striking as do the percentages quoted. The imports into the United States from Canada increased from \$27,000,000 worth in 1875 to \$62,000,000 worth in 1905. During the same period our exports to Canada increased from \$34,000,000 worth to \$140,000,000 worth or more than a four-fold increase.



The International Paper Company ship large quantities of pulp-wood from their Quebec limits to their mills at Niagara Falls, N.Y., by water in summer.

Pulp & Paper Currency

The charter of the Beaver Paper Company, Toronto, has been dissolved.



A number of Western Canadian publishers claim that abnormal freight rates are being charged on their shipments of news print, the cost of transportation in some cases almost equalling the price at the mills. There is enough business in the Western paper trade to warrant the establishment of large mills in the coast Province.



The Canadian Post Office Department has issued an order forbidding the transmission through Canadian mails of a large number of periodicals published in the United States unless postage stamps are affixed at the rate of one cent per two ounces. The reason assigned is said to be on account of certain objectionable features contained in their advertising pages.



With regard to the new soda process, referred to in last issue, developed by Mr. DeCew, we understand that no patent will be taken out, but that the process will be worked out in practice as a secret one, and will, therefore, not be described in this magazine. Although all woods can be cooked in this way in a very short time, it can be most economically applied to the cooking of hard woods, such as birch, beech, etc. It is probable that a company will be formed to manufacture pulp by Mr. DeCew's process.



The British Vice-Consul at Drammen, Norway, reports that the extraordinarily high prices of mechanical wood pulp

which, owing to scarcity of water power, ruled during the winter of 1904-5 proved of no stability. As soon as the spring flow enabled mills to work at full power, prices declined rapidly from £2 10s. to £2, f.o.b. per ton, moist; during the summer from £1 17s. to £2 7s., f.o.b. per ton, moist, wrapped in hessians, were the best prices obtainable for ordinary brands. A recovery occurred in the autumn, owing to heavy rains, thus nearly balancing the early reduced output. The year closed with ample stocks but few enquiries.



A meeting of sulphite manufacturers of the United States and Canada was held recently at Boston. Over 80 per cent. of the sulphite manufacturers of the two countries was represented. It was the unanimous opinion of those present that sulphite was being sold at too low a price considering the wood proposition and other factors of the market. Nothing final was done at this meeting. Another meeting is announced for June 8th.



Each year pulp-wood operators have to go farther and farther back for their supplies. For instance, it is not long since it was not thought profitable to haul pulp-wood in Ontario from points as far as North Bay in Ontario, but this year pulp-wood is being got out in quantities on the Temiskaming and Northern Ontario Railway, 130 miles beyond North Bay. The Ontario mills are now paying \$4 a cord for spruce and \$3 for balsam, delivered at stations in the region of North Bay, most of this wood being consumed by the mills of the Niagara Peninsula.

The Clifton "Chronicle and Directory," of Clifton, Eng., says: It is pointed out by the "Pulp and Paper Magazine," of Canada, that the British merchant or manufacturer is severely handicapped by the postage on a British publication being sixteen times that charged on a like publication issued from the office of a Canadian publisher. Our Chamber of Commerce will perhaps kindly make a note of this."



Forestry and Pulpwood

Forest fires have done considerable damage already this year in the vicinity of Trail, British Columbia.

E. Stewart, Dominion Superintendent of Forestry, left for the West about the middle of May. It is Mr. Stewart's intention to visit a considerable portion of the afforested area of the Western Provinces before returning, and he will probably make a trip down the MacKenzie River.

In addressing the Michigan Forestry Association recently the Hon. Arthur Hill made the statement that within fifteen miles of London, England, there is a young pine forest which has a larger area than all the pine land in Michigan to-day. Canada should learn the lesson before reaching the same condition.

Sir Frederick Biggar and Col. J. L. Borden, of the Headquarters Staff, Ottawa, interviewed Premier Whitney and the Hon. Frank Cochrane on May 12th at Toronto in regard to settling the timber licenses on a portion of the land to be taken for the new military training camp at Petewawa. There are 52,000 acres yet in the hands of the Crown Lands Department which the late Government offered to the Dominion. The settlers who had located on other lands required for the camp were settled with by the Dominion Government for \$40,000.

Advices have been received from Ottawa by the Dominion Lands Office; Dauphin, Manitoba, to issue no more permits for green timber on the Riding or Duck Mountain Reserves.

Lumber prices in Alberta will be advanced 50 cents to \$1 per thousand, the decision having been arrived at by the Mountain Lumbermen's Association at their meeting in Calgary recently. The advance at the coast was the cause of the raise.

The Dickson Company, of Peterborough Ont., has sold its timber limits in Canadish and Anstruther townships to a company composed of H. L. Tibbets, Boston, Mass.; W. D. Lummis, of Toronto; and H. J. Bartlett, of Orillia. The price paid for the limits which comprise about 105 square miles, principally of pine, and for the plant at the various camps, was \$600,000. This is the largest deal ever put through in Peterborough. The Dickson Company retains its saw mills at Lakefield and Peterborough but the purchasers have the right to use the Lakefield mill for five years.

Dealing with the question of Forestry, the University of Toronto Commission, appointed by the Ontario Government, reports: There is no doubt that a great work in forestry can be done in this Province by the universities provided it receives the co-operation and encouragement of the Government. The Ontario Agricultural College has already provided for instruction in agricultural forestry, which meets the needs of farmers with wood lots to care for and develop. The larger problem is that which touches the immense Crown lands, mainly urgently calling for the application there of the newest discoveries in forestry and for the training of skilled men to conduct experiments on a large scale in order to test methods of forestation and the conservation of valuable timber. It would, in our judgment, be a lamentable error if the direct establishment of a forestry department in the University to the Province in its administration of timber areas were not attained."

The Ontario Government will retain the services of Dr. Judson F. Clark, Provincial Forester, at an increased salary as a result of his excellent work. Dr. Clark received several tempting offers from the United States, including Yale University, but he has decided to remain in Canada.

Owing to the breaking of a boom a serious log jam has occurred above Rocky Falls, extending eight miles on the Sturgeon River. Logs belonging to B. Booth, George Gordon & Co. and the Imperial Paper Mills Co. are piled up and the sorting will entail considerable extra labor.

Ernon, Gagnon & Co., Chicoutimi, have issued a brochure illustrating their new machine, for which they hold the patent. It works automatically, almost without the need of one man to operate it, this machine will saw, it is claimed, as many logs of pulp-wood out of the log as a green or twenty men. This will be of immense convenience to pulp-wood manufacturers, the saving of labor being the most important item, especially where there is such a scarcity of men for all kinds of employment. Only those engaged in the business can appreciate the importance of this new machine.

D. S. Cowles and F. S. Whitehouse, president and treasurer respectively of the Bay Shore Lumber Co., were recent visitors to St. John, N. B. Mr. Whitehouse, in an interview with the St. John "Globe," said the company were to commence the erection of a barge at Salmon Falls almost immediately, which will be used to carry pulp-wood from Salmon Falls to their pulp and paper mills in New Brunswick. The new barge will be one hundred and eighty-five feet long, and twenty-eight feet wide and will have a carrying capacity of about twelve hundred tons. The plans were made by W. J. Huntley, of Parrsboro, and the foreman of the construction work will be J. H. Patterson of this city. The company intend building a couple more barges in the near future. Mr. Whitehouse further stated that the docks at Salmon River were being enlarged and

the river is being dredged to admit of larger vessels coming up to load. Conveyors will be built in order that the lumber may be transferred directly from the mills to the vessels.

Thos. Young, Crown timber inspector, of Dauphin, Manitoba, and one of the most widely-known men in the North-West, died on June 4th after an illness of about six weeks. Mr. Young was a candidate at the last provincial election, having contested Gilbert Plains riding against Glen Campbell.

The great timber belt in British Columbia lying between the Fraser River and the Serpentine, which has been the admiration of travellers on the Yale road during the last thirty years, is about to ring with the sound of the woodman's axe for the first time, says the New Westminster "Columbian." The section nearest the Fraser, which is owned by the Royal City Mills, will probably remain standing for some time yet, as it has been stated that the company intends to hold its property there intact for some years, but the southern end of the belt, which was lately acquired by the Vancouver Timber and Trading Company, will be lumbered without further delay.

The secretary of the Canadian Forestry Association has received word from C. M. Beecher, chairman of the reception committee for the meeting of the Forestry Association which is to be held in Vancouver in September, that the British Columbia people are making preparations for the reception of the Forestry Association. The programme will be on the following lines: There will be a public reception the evening of the arrival of the delegates in Vancouver, at which they will be made welcome to the city during their stay, and all the delegates, with their wives and families, will have an opportunity of meeting with the citizens in general. The forenoon of the second day will be devoted to the calling of the Convention and the reading of one or two papers; the afternoon will be spent in driving to the various mills and inspecting

them; and in the evening there will be a banquet provided. The next day, morning and afternoon, will be devoted to business; and in the evening steamers will be provided to take as many as wish to go for a coast trip, which will include a visit to one or two of our great logging camps. The papers to be read at the meetings will be short, and there will be papers dealing with our Pacific Coast lumber and forestry matters. His Excellency the Governor General has informed the officers of the Forestry Association that he intends to be present at the meeting. It is possible that Sir Wilfrid Laurier may also attend.

An important decision with reference to the timber trade of Sweden was adopted by the Riksdag at Stockholm on May 25th. After a debate in both Houses, which lasted to a late hour, a Government bill was passed limiting the rights of large companies to purchase extensive tracts of land in the forest districts of Northern Sweden. Under the old conditions the timber was felled on a very large scale more with a view to immediate profits than to the proper working of the forest lands, and the extension of agriculture in those districts was thus materially prevented. In defending the bill the Prime Minister said that the restrictions it established in the private rights of land-owners as to the free disposal of their property constituted a legal consecration of the principle that such rights could not be considered as absolute and unlimited, and must give way to the necessity of safeguarding the future and the interests of the country at large.



HANSON'S PULP FELTS.

With this issue we begin the announcement of George E. Hanson, proprietor of the Hull Woolen Mills, regarding the superior line of felts manufactured for sulphite and ground wood

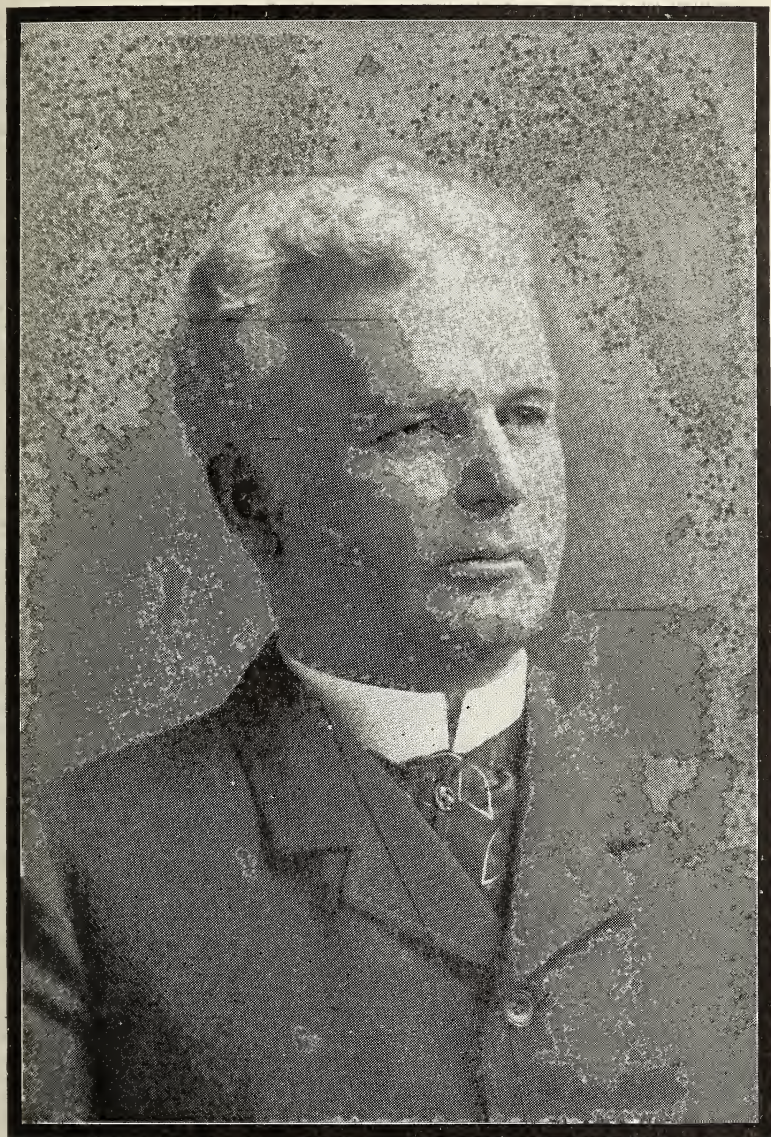
pulp mills. This business was established in the year 1878 by the late J. D. Hanson, and has been continued by the present proprietor, who "grew with the business," and understands it fully. From a small beginning the business grew steadily, and last year Hanson erected a new mill. The building is solid brick, the main portion being 150 by 50 feet, with a 16-foot ceiling, and there is an extension, by 23 feet. The new building was erected with a view to obtaining the best results in the special lines of Mr. Hanson manufactures, chief among these being pulp felts, which have given excellent satisfaction in some of the largest of Canadian mills. The looms on which these felts are made are special machines, used exclusively for this purpose. A partial list of Hanson's customers will be found in his announcement in the advertisement columns.

Speaking of Mr. Hanson's business in the "Canadian Journal of Fabrics" recently said: "The secret of his success more especially in the past five years may be found in two cardinal principles he determined to carry out. One was to make a good, honest, all-wool article of a uniform character, and the other was to sell his goods at a living price or not at all. He neither listened to suggestions of prospective buyers, nor besought him to make a cheaper article than his old standard in order that he might undersell their competitors; was he frightened in the least by the bluff of certain buyers that they would get the same goods at another price cheaper. He was equally indifferent to the bait held out by other buyers that they would give him a huge order if he made a cut in the price. More than once he has turned away a large order made on such conditions, but he has always found customers elsewhere to take their place, or, as has happened more than once, the buyers who refused him inflexible have come to him on his own terms, and have confessed that they have respected him for sticking to a definite policy."

International Paper Co's President.

prominent among Canadians who have made their mark" in the United States stands Hugh J. Chisholm, of

"Of captains of industry many names will readily occur to anyone familiar with American business life. The presi-



Hugh J. Chisholm.

New York, the president of the International Paper Company. Speaking of him in a recent review the Toronto "Globe" says:

dent of the International Paper Company—that vast organization which practically controls the paper-making industry of the United States, and owns hun-

dreds of thousands of acres of pulp forest in Canada—Hugh J. Chisholm, is a Canadian. Mr. Chisholm, who was born at Niagara-on-the-Lake not quite sixty years ago, began life in the orthodox way for a boy who intended to end up a millionaire in a Fifth Avenue mansion. He started as a newsboy on the Grand Trunk Railway, employed his spare evenings studying in a Toronto business college, gradually extended his operations till he controlled the train routes on the Grand Trunk as far east as Portland, and finally settled in that city. Becoming interested in pulp-wood, he organized the Otis Falls Pulp Company and the Rumford Falls Power Company; gradually his operations widened until to-day he is at the head of a company controlling over twenty mills, with an output of fifteen hundred tons of paper a day."



LONDON PAPER MERCHANT FAILS.

George Mawson, paper merchant, of Fleet Street, London, E.C., who recently failed, was at one time identified in developing the imports of American and Canadian news into this country. For a short period he was the agent of the Laurentide Paper Company, whose offices were in the same building as those of the International Paper Company, of New York. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £10,149 4s. 4d., of which £5,968 1s. 1d. was due to unsecured creditors. To fully secured creditors £1,768 15s., the value of the securities being returned at £1,788 4s. 3d., thus showing a surplus of £19 9s. 3d., which was carried out as an asset. To partly secured creditors, £2,413 12s. 3d., the value of the securities being returned at £1,467 9s. 3d., thus leaving a balance of £944 19s. to rank against the estate, and bringing up the total liabilities expected to rank against the estate for dividend to £6,913 0s. 1d. The assets were returned at £825 10s. 9d., thus showing a deficiency of £6,913 0s.

1d. It appeared that the debtor commenced business on his own account 97 Queen Victoria Street, E.C., in 1894 without any capital of his own, but borrowed £1,000 from a relative. At first he intended to act as an agent only, but he found he had to get orders on his own behalf, so he started as a merchant, and it was for that purpose he borrowed the capital from his relative. Until the end of 1904 he was doing good business, and building up a large trade, although he felt the want of capital at times. Since then he had made about £3,000 worth of bad debts, which crippled him entirely, and he was oppressed by his creditors. The immediate cause of his filing his petition was that a creditor issued execution against him. Among the unsecured creditors the Manufacturers' Paper Company, of New York, appear for £1,726, and Mr. Conner, a representative of the company mentioned, was appointed with others to form a committee of inspection.



DOMINION PULP COMPANY

The Dominion Pulp Company, Chatham, N.B., after a shut-down of nearly five months, caused by the destruction of the acid-producing plant in January 14th last, has resumed operations. The mill is now under the management of R. B. Horton. For him, as superintendent, is John Harte. It will be remembered that on January 14th a serious fire broke out in the Dominion Pulp Mill, and before the conflagration was extinguished the plant in connection with the mill was totally destroyed. Since that time a large three-storey acid plant building has been built by the Chatham Paper Mills. John McDonald & Co. was finished in time for the first making to begin on May 23rd, and cooking on the following Tuesday. The mill has a capacity of 130 tons a day. During the time the mill was shut down the whole plant was gone over, and alterations and improvements made.

Remarkable Expansion in Canada.

Wonderful Developments Now in Progress in Pulp and Paper Industries.
New Mills from Coast to Coast.

There has been marked activity in the progress of the pulp and paper industry in British North America during the past few months. From far Vancouver Island in the West to Newfoundland in the East comes news of new companies entering into the pulp and paper fields, and generally speaking they are strong financially, and will quickly take an important place in the trade.

The Quatsino Power & Pulp Company, Limited, owning 70,000 acres of timber land will immediately let a contract for the construction of a pulp mill on Quatsino Sound in the northern end of Vancouver Island. C. H. Lugin, secretary of the company says:—"We will erect a pulp mill having an initial capacity of from 60 to 70 tons per day. The erection of such a plant will involve an expenditure in the neighborhood of \$20,000, the funds for which have been decided by Eastern capitalists. It has taken some little time to perfect all arrangements, but I am safe in saying that the plant will be in operation by the end of the year. We expect to find a market for the entire output of the mill in Asia, and will later make extensions to make up the manufacture of paper."

Another large project is under way at Bella Coola in the Burrard district, British Columbia, where \$1,500,000 will be invested in a pulp and paper mill in the near future. The principals in the industrial venture are: J. B. Hart, city attorney of Seattle, and A. E. Williams, of Portland. The capital comes principally from the Eastern States. At the present time a survey party of twenty-five men in Bella Coola Valley completing a survey of the pulp limits. Mr. Jacobson is the founder of the Norwegian colony at Bella Coola. Several months ago he interested a number of Canadian men in the Bella Coola pulp project, and a lease of lands was secured from the Provincial Government.

Subsequently Mr. Jacobson induced Mr. Hart, of Seattle, to take the matter up. Mr. Hart and Mr. Williams thought so much of the pulp lands that they formed the Bella Coola Development Company. It is estimated that the company will commence the erection of a pulp and paper mill near Bella Coola as soon as the pulp lands have been surveyed and other preliminaries settled. The Norwegian colonists have entered into an agreement with the company by which all the timber at the colonists' lands is turned over to the company in return for an undertaking that the colonists shall be employed at the company's works and in the woods. It is estimated that the company will survey 80,000 acres of pulp lands, and the company places the amount of timber per acre at 30,000 ft.

The announcement is also made by J. M. MacKinnon, managing director of the Canadian Pacific Sulphite & Pulp Company, that the capital of this company has been fully underwritten by the Canadian Finance Syndicate of London, England. The capital is placed at £107,000. The company has extensive limits up the coast near Princess Royal Island. They are situated well on the route of the steamers from Vancouver to the North, and the mill site has already been cleared. Water-power in abundance is close at hand. In the lowest estimate there is twelve thousand horsepower available all the year round. Work will be started at once on the townsite and mill at Swanson Bay.

The North America Land and Lumber Company, which was recently incorporated, has also been granted power to erect pulp and paper mills, and although their plans are not yet definitely known, it is understood they will do something in these lines next year.

Another pulp mill of considerable dimension is now in progress at Erwood

in the Dauphin district, Manitoba. Mr. Robertson, of Minneapolis, is installing a large pulp manufacturing plant near Erwood and will ship several carloads of pulp every day from that point. Mr. Robertson has extensive interests in timber and mines both in Canada and the United States, and is the largest shareholder in the Red Deer Lumber Co. The Dauphin district contains the greatest forest wealth between Lake Superior and British Columbia, and lumbering is conducted there on a large scale. It would not be surprising to see other companies embark into the same venture. With the rapid growth of Manitoba and the new provinces there will soon be a market for large quantities of paper, and with a good mill in this district Western publishers would be able to cope against the high railway freight rates from the east and south of which they now bitterly complaining.

Coming on to New Ontario there are interesting developments going on. The representative of a large firm in Bangor, Maine, recently spent a week in the Seine River district. To the Fort Frances "Times" he said: "You have a fine and beautiful country with boundless natural resources." It is learned that should the Bangor company secure the concession at Sand Island Falls they will erect pulp mills at Fort Frances.

The Backus-Brooks Syndicate will also erect pulp and lumber mills at Fort Frances. They are interested in the Act passed at the last session of the Ontario Legislature respecting the Ontario and Minnesota Power Company. This Act consolidates a number of previous Acts, and provides that the same amount of electrical energy shall be delivered on both sides of the International boundary. The Backus-Brooks Company has also purchased the limits of the Keewatin Lumber Company.

The Michigan Pulp-wood Company, incorporated under the laws of Michigan has been given power by the Ontario Government to use a capital of \$40,000 to manufacture, and also to deal in pulp-wood.

Merritton, Ont., will soon earn title of the Canadian "Holyoke." another column announcement is that the Merritton Paper mills Company, Limited, has been organized with a capital of three hundred thousand dollars. They will manufacture super loft dried papers. Sydney G. Brant, the president of the new company, writes the "Pulp and Paper Magazine" that they expect to be in operation in the fall.

Mention has already been made of this magazine of the extensive paper John R. Booth has on hand in the paper mill line at Ottawa. Mr. Booth's paper have been substantially increased, owing to his having secured the valuable Montreal River limits from the Province. When the Ontario Government announces the disposal of the four limits it will, no doubt, mean a large increase in the pulp and paper industries of this Province, as the conditions of sale make manufacturing imperative.

New developments are also expected in Quebec at an early date. The disposal of limits under auspices of the Department of Lands, Woods and Fisheries takes place on the 21st of this month.

A new paper mill is also announced to be built at St. Raymond, and a sulphite mill at Jonquiere.

At Chatham, New Brunswick the Miramichi Pulp and Paper Co., Limited, are making extensive additions to already fine plant, and this with operations of the Harmsworths will keep the Maritime Provinces abreast with the others.

The announcement comes from the east that Harry J. Crowe, vice-president and general manager of the Newfoundland Timber Estates and the New Lumber & Pulp Co., of Halifax, Limited, which are operating extensively in Newfoundland, has returned from England where he has been carrying on negotiations with a British syndicate. The syndicate contemplates erecting large pulp and paper mills in Newfoundland. Harry J. Crowe is now in Newfoundland.

for the manufacture and shipping of
 sales he has executed for his com-
 pan's cut of lumber the present year.
 10,000,000 feet have already been
 by the Newfoundland Timber
 for shipment to Buenos Ayres.
 There has been a steady increase in the
 demand for Newfoundland lumber in the
 Argentine Republic since the timber
 companies and the Newfoundland company
 commenced shipping there over
 twenty years ago. The selling price of
 the lumber has been advanced 15 to 20
 percent. over previous years.

From the above resume it will be seen
 that British and American capitalists
 have placed unbounded faith in the
 future of the pulp and paper industries
 in this country, and new developments
 are bound to be rapid from this time
 forward.



WILLIAM PRICE RECOVERS POS- SESSION OF CHICOUTIMI WHARVES.

The long legal fight of William Price
 with the Chicoutimi Pulp Company at the
 Quebec Government intervening was
 disposed of by Judge Gagne at Chicou-
 timi on May 15th. Judgment was given
 in favor of the plaintiff, who gets pos-
 session of the wharves again. It is un-
 derstood the Chicoutimi Pulp Company
 will be put to no expense in defending
 the action, as the letters patent granted
 by the Government, and by which
 he held the property were considered
 worthless. Judge Gagne declared the
 Acts of the Legislature of Quebec
 unconstitutional so far as they affect the
 rights of the Price estate.
 Twenty years ago the Prices built
 wharves of considerable value at Chicou-
 timi Basin, to prevent the land being
 washed away by the water. The site upon
 which they were built had been purchas-
 ed from the Government by the Messrs.
 Price, some years before, and though a
 portion had been resold, the understand-
 ing had been arrived at between the

Messrs. Price and Roger Savard, the
 then riparian owner, as well as with the
 corporation of the town of Chicoutimi.

The Government, assuming that the
 wharves were constructed on beach lots
 belonging to the Crown, granted an ap-
 plication of the Chicoutimi Pulp Com-
 pany to be placed in possession of the
 property in question, and compelled the
 Price Company to yield them up, and
 turned them over to the Chicoutimi
 Pulp Company. This was in 1900. The
 Government gave letters patent to the
 pulp company for all the lands covered
 by these valuable wharves in the eastern
 part of the basin, and the company took
 possession accordingly. Mr. Price pro-
 tested and took action to be replaced in
 possession of his property. The Legis-
 lature, despite, the opposition of Mr.
 Price and of his attorneys, passed two
 acts in 1904, calculated to over-ride the
 courts of justice and to encroach upon
 private rights.

Clauses were inserted in them declar-
 ing the pulp company to be the lawful
 proprietors of the land in question. One
 of these bills was that to amend the
 charter of the town of Chicoutimi. Mr.
 Price attacked the validity of the let-
 ters patent issued by the Crown and the
 constitutionality of the Acts of the Leg-
 islature referred to. The company con-
 tested the demands of Mr. Price, and
 the Attorney-General intervened on be-
 half of the Crown, being represented by
 Mr. Lanctot, deputy Attorney-General,
 Mr. Belley, of Chicoutimi, and Mr. Gus.
 Stuart, K.C., of Quebec, appeared for
 Mr. Price and Mr. Belleau, K.C., and
 Mr. Alain, for the pulp company. Judge
 Gagne, as already reported, decided that
 the action of Mr. Price is maintained,
 declaring that the lots in question were
 not beach lots, and that the statutes
 passed by the Legislature were inopera-
 tive so far as they affected the rights of
 Mr. Price. It is believed that one of the
 results of this judgment will be to re-
 store the confidence of investors and
 capitalists in the efficacy of the law
 courts to protect private interests from
 spoliation by the Legislature.

J. R. Booth Secures First Concession.

Right to Cut 20,000 Cords of Pulp-wood Per Year for 21 Years on Montreal River Area Goes to Ottawa Lumberman and Paper Manufacturer.
Bonus Paid \$300,000.

Up to and including May 18th last the Ontario Department of Lands and Mines received tenders for the right to cut pulp-wood on the five pulp-wood areas all in the district of Rainy River, being areas tributary to the following: (1) Montreal River in the district of Nipissing; (2) Nepigon River in the district of Thunder Bay; (3) the Rainy Lake; (4) the Wabigoon River; (5) the Lake of the Woods.

The first of these, the Montreal River concession, consisting of 1,660 square miles, lying north and west of the Temagami forest reserve, was disposed of to John R. Booth, of Ottawa, for a cash bonus of \$300,000. In addition to this the purchaser is required to pay dues to the Government of 40 cents a cord for spruce and 10 cents per cord for other pulp-wood on the area.

Twenty thousands cords must be annually. The permit extends over period of 21 years.

This concession was formerly held by the Montreal River Pulp and Paper Company, but was cancelled by the Government early this year owing to the company failing to live up to the terms of contract. The \$20,000 deposited by the company as a pledge to carry out their agreement has been claimed by the Government as a forfeit.

While the announcement calling tenders stipulated that mills were to be built on the areas it is stated that the Government is satisfied with the plan. Mr. Booth has now under way for a large Ottawa plant.

No announcement has yet been made by the Government regarding the remaining concessions.



ONTARIO'S POWER COMMISSION.

The Ontario Government has announced the appointment of Hon. Adam Beck, Hon. J. S. Hendrie, and Cecil B. Smith as a permanent Power Commission, which will arrange to supply electric power to companies and municipalities throughout the Province in connection with the Act passed at the last session of the Provincial Legislature.

It will be remembered that the Ontario Government had given, previous to the advent of the Whitney Administration, concessions for three power plants at Niagara Falls, and these are nearing completion. It was thought that the Government would either have to buy one of these companies out in order to go into the distribution of power or else would have to build a new plant on one of the sites still remaining

in its hands. But the Government decided on neither of these things. It created a permanent Power Commission, to which all municipalities or companies may apply for blocks of power, and this Commission will deliver the power to the municipality, and will construct the transmission lines within the municipality and will charge the municipality a rate sufficient to pay four per cent. on the outlay and to pay off the whole cost of the work in forty years.

The Commission is authorized to purchase from the developing companies, and will also transmit their lines to the municipalities. It assumes that the companies will claim the Commission fair rates for power and transmission, but if the companies charge more than the Commission thinks reasonable, then the Commission has power to expropriate both the development plant and the transmission

In other words, the Commission's device to secure for the people reasonable rates of power from the companies, allowing the companies a reasonable profit. Hon. Adam Beck, who has been the Minister who has dealt with this subject, reports that he has already been offered power for the Commission at the Falls for \$11 per horse-power, and at this rate it is estimated that power can be delivered in Toronto for \$17 per horse-power per year, whereas the prices which it was proposed to charge by the companies were from \$35 to \$40 per horse-power in large blocks, with considerably higher prices for small units. The Government's plan does not please the companies owning the power plants, neither does it please those who are in favor of a thoroughgoing Government ownership, but it is very satisfactory to the power-users of Toronto and other cities who are not anxious to illustrate any principle, but are willing capitalists who, having risked their money, should have a reasonable return, but who want to get their power at an early date and at a reasonable and fixed price.



PIGEON RIVER TIMBER LIMITS.

The successful tender for the red and white pine timber berths D and E, situated on Pigeon River, in the Thunder Bay district, was the firm of Briggs and Shears, Port Arthur. The price secured by the Ontario Government is \$7.75 per thousand feet, board measure, to be paid for the logs after they are cut and measured by the Government scales.

This is one of the first sales which have been made under the new system. In getting a net price for every stick of timber on the berth the Government gets something that they are entitled to and without risk from inaccurate estimating, never done by mistake or through underhanded tactics. On the other hand the lumberman knows exactly what the timber costs him per thousand feet.

Another very important feature about this system is that good men of very moderate means can bid for timber, as the fact of the timber only being paid for after it is cut enables the operator to use what capital he has for taking it out instead of locking it up in the limit itself. The only drawback, so far as the department is concerned, is the danger of fire, in which case the loss would naturally fall on them instead of the lumbermen, but the large increase in the price should enable them to put aside more than sufficient to cover possible losses. In addition to the net price of \$7.75 the licensees pay \$5 per square mile per year.

Under the old system only a large capitalist could remain in the business as the limits had to be bought outright at the auction sales. It meant also that either the Government got more than the limit was worth or considerably less.



ROBITAILLE LIMITS NOT SOLD.

It was announced in the last issue of the "Pulp and Paper Magazine" that the Robitaille timber limits situated in Bonaventure County, Quebec, the property of Louis Robitaille had been sold to an American syndicate. It now turns out that the sale has not been closed. The price agreed upon was \$600,000, and the deed of sale was prepared by the notaries, Huot & Larue, but when the time came to sign three out of the purchasing syndicate withdrew, and the other members of the syndicate asked for one month's delay. The syndicate had plans to put up a large sawmill, and turn only the tops of the trees into pulp-wood. The great wealth of these limits is cedar, which is about the largest good tract in the Province of Quebec. It would seem that the American syndicate was deterred from buying by the inroads of colonization. Those who know the situation say that at the rate lands are being taken up for settlement half of those limits will be gone before five years.

QUEBEC AND LAKE ST. JOHN RAILWAY.

The annual meeting of the Quebec and Lake St. John Railway held recently in Quebec, was of unusual interest to the pulp and paper industries. Last year the company handled 31,040 cords of pulp-wood, and an increased tonnage of paper and pulp. The report shows the company to be in a good financial condition and thoroughly alive to the facilities for trade. It refers to the output of the pulp and cardboard mills at Chicoutimi, Jonquière, Oulatchouan, Peribonka and St. Raymond, which continue to give the railway large business. Mention is also made of the facts that a paper mill is being built at St. Raymond, a sulphite mill at Jonquière, and new lumber mills at St. Raymond and Rivière à Pierre. The Metabetchouan Pulp Company has also been reorganized, and the report expresses the hope that the industry will now be carried out. Negotiations are in progress for the development of the great water-power at La Tuque, on the St. Maurice, and several large industries are likely to be located there. The construction of the company's branch to this point is proceeding rapidly and will be a factor in the making of an industrial centre at La Tuque. The branch line from Valcartier to Gaspard has been completed to a point where a considerable traffic in pulp-wood and cord wood is already available.



REPORT OF THE DEPARTMENT OF LANDS AND MINES.

The report issued by the Department of Lands and Mines of Ontario for the year of 1905 was recently issued, and contains much valuable information. The Department notes a disposition on the part of applicants for land in the newer sections of the Province to prefer tracts that are well timbered, often regardless of the fact that the soil is unfit for agriculture. To prevent the timber

thus falling into the hands of speculators masquerading as settlers, the Department has entered upon a system of inspection. Its officers regularly visit the homestead taken up and keep careful watch on the operations of the settler to see that he takes timber only in the way of improvements, and actual clearing, instead of stripping the land of its timber solely for the timber sake. There were 425 fire-rangers on duty during the summer. Of these, 100 were employed on territory under timber license. Very few fires occurred within licensed limits. Carelessness on the part of settlers and Indians in respect to fires is now a thing of the past.

The report contains the following paragraph referring to the pulp-wood areas, and the action suggested since been taken:

"The Sault Ste. Marie Company having resumed operations, the quantity of pulp-wood taken out is much larger than last year. The figures for the season are 72,678 cords, as against 29,833 cords in 1904. The Spanish River Company is now making pulp, and the Sturgeon Falls Company has increased its capacity. There are several companies looking for concessions which have made no attempt to operate, and have not carried out any of the conditions on which their concessions were granted. It has become advisable to deal with these concessions in some way which will give an opportunity for their development and operation."

Contrary to expectation, the pulp-wood came, for the most part, from the Western timber district. This district yielded 64,912 cords of the pulp-wood. 72,678 cords taken off the Crown lands. Hence, the chief sources of Ontario Crown lands' pulp-wood are evidently the mills at Sault Ste. Marie, Espanola and Sturgeon Falls. The mills on the Ottawa side, such as the Buckingham, Hull, Carleton Place and Haul Resbury mills, draw their wood from the Quebec side. The comparatively small cut of 72,678 cords gives an idea of how Ontario is husbanded.

pulp-wood supply. Of course, there is no exportation of pulp-wood from the Crown lands. There is some sale of pulp-wood marketed by Ontario farmers, but the quantity is negligible. This Province is holding on to its spruce.

The reports of the surveyors of the Department show that pulp-wood abounds in the areas explored last year. Messrs. Speight and Van Nosstrand, who surveyed a section of Algoma, report that the predominating timber is spruce, poplar, tamarack, balsam and white birch. In the vicinity of the river the spruce is of good quality, attaining a maximum stump diameter of 4 inches. Poplar, which abounds on the ridges, reaches a diameter of 10 to 15 inches. Another section of Algoma was laid out by Surveyor Niven, who says of the timber that spruce covers the whole country, the diameter varying from 14 to 16 inches. Most of the spruce is of the red variety, though it occurs on the banks of the streams. Surveyor Rorke found the country adjacent to the meridian line surveyed in Algoma to be well covered with second growth poplar, spruce, fir and birch, and with older timber of the same varieties in the more northern part of his course. The township of Chewett, also surveyed by Mr. Rorke, has, he says, a good quantity of spruce, birch, poplar and hawksian pine, the spruce and hawksian pine measuring from 12 to 20 inches in diameter. Mr. Fitzgerald describes the township of Maffay, in Algoma, as well timbered. On a margin of about half a mile on the south side of the Mattagami River the spruce, poplar, birch and balsam are in the late. Lewis Bolton found in the township of Smellie (Rainy River district) an abundance of spruce and poplar suitable for pulp-wood.

The water powers are reported on the Mattagami fully than they were in former years. Several falls capable of development for power purposes are mentioned on the Mattagami River in Algoma. Of these, Sandy Falls is described as of great value. On the same river is Stur-

geon Falls, fifteen feet high, not, of course, the Sturgeon Falls developed by the Imperial Paper Mills, Limited. One of the most important of the water powers on the Mattagami is that at Sturgeon Portage. Mr. Fitzgerald estimates it at 2,272 horse-power.



PERIBONKA PULP COMPANY'S FAILURE.

The announcement of the Peribonka Pulp Company's failure is not a surprise to those aware of the circumstances under which the works were carried on. According to measurements made by the officers of the Department of Crown Lands, the falls supplying the power can produce only 679 h.p. at high water and about 500 at ordinary water. The men who organized the company, however, took measurements of their own, and represented to the shareholders that the Government officers were below the mark, and that the real power at low water was nearly twice larger. They built the pulp mill accordingly. When the mill was started it was found that the power was scarcely sufficient to run the four grinders empty. For the purpose of increasing the power the management had a canal made to bring to the Little Peribonka the water of a couple of lakes discharging into the Big Peribonka River. The length of this canal is over fifty miles. Rocks had to be cut at great expense and various brooks cleaned. The volume of water thus brought to the falls was practically nil, as the increased flow of the brooks was lost in the swamps through which they flow, and the repairs to the dam at the outlet of the lake were a source of constant expenditure.

The mills are situated about six miles from Lake St. John, in the virgin forest, which compelled the company to build houses for part of their employees, and thus tie a part of their small capital. Then, they had to build

scows and buy a tow-boat to carry their pulp to Roberval, the nearest railway station, about thirty-five miles from the mills. In the river, which is very crooked, narrow and very shallow, they had to use small scows, which could not stand the waves on Lake St. John, a circular sheet of water over twenty-five miles in diameter, with a depth of 300 feet, mostly everywhere. In stormy weather the scows could not go out, and in favorable weather it took forty-eight hours to make a trip. During winter they had to store the output of the mill. It cost the company over 50 cents a ton for this transportation. Then, when this capital was exhausted they had to borrow money at high rates of interest. But the worst of it was that the management of the mill was in the hands of men who did not understand the business, and who had not even competency in mechanical engineering. The site was not fit for a pulp mill, and the power was quite deficient, but the persons invited to subscribe the capital evidently did not give the matter much consideration, and did not seem to realize that it takes experience to run any business even under the best circumstances.

The company, which went into voluntary liquidation on May 29th, was incorporated in 1901, with a capital of \$30,000, to manufacture wood pulp and with the power to instal electric lighting plants, build steamers and barges, and do a general trade in the Lake St. John district. In August, 1901, additional letters patent were secured, authorizing an increase of capital to \$100,000. Hon. A. Robitaille is the president, A. E. Vallerand the vice-president, and E. A. Vezina the secretary-treasurer. The mill is at Roberval. The liabilities are placed at \$150,000 and assets at \$75,000.



EXEMPTION OF WOOD LOTS.

One of the measures passed at the late session of the Ontario Legislature was a bill introduced by J. P. Downey, the

member for South Wellington, for the purpose of encouraging reforestation in old Ontario. It to a certain extent exempts woodlands from taxation, and is a measure which will be generally endorsed by the people. The main sections of the new Act are as follows:—

1. The council of any township may subject to the provision of this act, pass a by-law or by-laws exempting in whole or in part from municipal taxation, including school rates, lands in the township being "woodlands" within the meaning of section 2 of this Act. Provided that such by-law shall not exempt more than one acre in ten, and not exceeding ten acres in the whole of the lands held under a single ownership.

2. For the purpose of this Act, "woodlands" shall be defined to be lands bearing not less than 400 trees per acre of all sizes, or 300 trees measuring over 4 inches in diameter or 200 trees measuring over 5 inches in diameter, or 100 trees measuring over 8 inches in diameter (all such measurements to be taken at 4½ feet from the ground) of one or more of the following kinds: White pine, Norway pine, white or Norway spruce, hemlock, tamarac, oak, elm, hickory, bass wood, tulip (whitewood), black cherry, black walnut, butternut, chinquapin, hard maple, black locust, or alapa, ash, soft maple, cedar, sycamore, beech, or any other variety which the Council may name in such by-law, which has been set apart by the owner for the sole purpose of fostering the growth of trees thereon and which is not used for grazing live stock, or for any other purpose which would interfere with the natural growth of trees.



POINTERS FOR CANADIAN PULP AND PAPER-MAKERS.

The Canadian Commercial Agent in Australia makes the following observations in his last report about the paper trade there: "The consumption of printing paper in Australia and

and is about 100,000 tons per annum. Advantaged by a preferential tariff, Canadian paper is making some headway in New Zealand, but is not making similar progress in Australia. The character of the trade is changing. The large newspaper offices formerly free of the risks of delivery, and in order to meet the exigencies of transmission they carried heavy stocks. Now the paper firms of Great Britain and the United States are guaranteeing deliveries to the extent of carrying a reserve stock, if circumstances appear to warrant it, in Australia. It is, therefore, difficult to get open contracts of the old character, and the Canadian mills that take only the price at the mill door and undertake no responsibility for deliveries can hardly expect to secure orders. It is worth the consideration of Canadian paper mills, or a number of them, whether they cannot be advantaged by having one selling agency."

The acting British Consul-General at Christiania (Mr. E. F. Gray), in reporting that no small amount of Norwegian wood pulp has recently been shipped from Trondhjem to Japan via Hammar, remarks that this may be worth the attention of Canadian wood pulp manufacturers.



UNITED STATES IMPORTS OF WOOD PULP.

During the month of March the United States imported wood pulp as follows:—

From—	Tons.	Value.
U. S. America	10,268	\$210,558
Norway ..	2,058	117,882
Germany ..	753	42,562
Other European countries ..	1,145	52,040
Total ..	14,224	\$423,042

The total for the corresponding month of the previous year was 11,829 tons valued at \$320,828, to which British Columbia contributed 9,485 tons of value of \$198,072; Norway, 379 tons,

\$20,726; Germany, 646 tons, \$37,748; and other European countries, 1,319 tons, \$64,282.

During the nine months ending with March last, the United States received wood pulp as under:—

From—	Tons.	Value.
B. N. America	86,392	\$1,871,129
Norway ..	13,805	751,856
Germany ..	6,293	334,803
Other European countries ..	12,268	553,851
Total ..	118,758	\$3,511,639

Compared with the corresponding period of the previous year a decrease is shown of 9,811 tons, but the value has improved to the extent of \$207,454. The imports from British North America show a decline of 16,875 tons and \$202,124; from Norway, an increase of 2,661 tons and \$177,584; from Germany, an increase of 1,171 tons and \$82,766, and from other European countries, an increase of 3,232 tons and \$149,288.



PATENT UNIVERSAL PULP STONES.

Jean Freese, 132 Nassau Street, New York, who is most favorably connected with the pulp and paper industries, begins in this issue an announcement regarding "The Patent Universal Pulp Stone." These stones have now been in the market for about four years, and are in use to the number of several hundred, and have met, in every respect, the most exacting requirements of the mechanical wood pulp industry. They consist of a number of segments (6 to 12, according to the diameter), united by a reliable binding cement, thus forming a unit; for further safety an iron ring is imbedded in each side and securely cemented. The advantages of these stones over those consisting of one solid piece are the following:

(1) The greatest uniformity of hardness and grit, securing a larger production of pulp of the best quality. These ad-

vantages are obtained because the selection of the segments or small parts can be made more thoroughly than is possible with the very large blocks which are required for the production of the solid stones. These large blocks very often contain different defects, such as extra hard or soft parts, fissures, cracks, etc., all of which cannot be detected until the stone has been in use, thereby often causing, after a very short time, a great deal of trouble and loss of time to the manufacturer.

(2) The greatest solidity, durability and security. These patent universal grindstones are absolutely safe, because the separate segments consist of the most sound material securely connected. It is therefore in the interest of the pulp manufacturer to look into this far-reaching and important novelty. Full particulars may be had from Mr. Freese at the above address.



PROGRESS OF THE HARMSWORTHS IN CANADA.

Silently, steadily, and with the usual British characteristic of being "There with the goods," the Harmsworths are carrying out their enterprises in Canada in connection with the pulp, paper, and publishing industries. The Ontario "Gazette" of June 9th, announces the organization of "International Publications, Limited," which is particularized in this issue under the heading of "New Companies." This is the Canadian branch of the London Harmsworths, and just how far they intend to push their business in Canada is not known to anyone but the men "inside." British firms invariably prefer to carry on their large undertakings without much publicity in the early stages, and the Harmsworths are no exception.

Good progress is now being made at their new town of Grand Falls, New Brunswick. The town has been surveyed, streets laid out, and areas for churches, schools and public buildings set apart.

The manager's residence, a handsome log cabin has been built on a bluff overlooking the town, and offices for the staff have also been built. Over 100 men have been employed all winter to saw 2,000,000 feet timber has been cut and a mill 130 feet by 70 is being built, in which these will be sawed and also the timber for building the pulp mills. The site of these mills seems to have been designed by nature and within three years it is expected the town will have a population of 3,000. Mill town, which is about thirty miles distant will continue to be the logging center and will support 2,000 people when the mills are completed.

The Harmsworths have used good judgment in all their undertakings, their advent to Canada would seem to be at the proper time.



LITERARY NOTES.

The "Pulp and Paper Magazine" tends its greetings and congratulations to the "Paper Trade Journal," of New York, for having joined the ranks of those who have adopted the magazine form in trade journals. The magazine style is more convenient, both for handling, for reading and for binding, and we are not surprised at the general chorus of approval which greets the publishers of our instructive contemporary upon the change.

The "Selling Magazine" is an American publication, devoted, as the name indicates, to the field of selling machinery. It hopes to instruct manufacturers how to most economically market their machinery, tools, equipment, and supplies. The scope for a publication is unusually large. Under wise direction it should prove a splendid source of information to manufacturing firms and sales agents. The publisher, Emmerson P. Harrington, has surrounded himself with a capable staff. The offices of the company are in the Postal Telegraph Building, New York.

NEW COMPANIES.

The Michigan Pulp-wood Company which was organized under the laws of the State of Michigan, has been granted in Ontario charter to cut and deal in pulp-wood in the Province of Ontario. James L. Darling of the town of Sault Ste. Marie, Ont., has been appointed attorney for the company.

The Merriton Paper Mill Company has been organized with capital of \$300,000, head office, Merriton, Ont. The provisional directors of the company are Sidney Gilchrist Brown and Thomas W. W. Brown, both of the city of St. Catharines, manufacturers; Herman G. Beach, manufacturer, and Charlton L. Baker, both of the city of Waterdown, Ont.; and William R. Chipman, of the city of New York, consulting engineer. The company is authorized to manufacture and sell paper. The officers are: Sidney G. Brown, president; Thos. W. Brown, vice-president; Herman G. Beach, secretary-treasurer.

International Publications, Limited, with capital \$1,000,000, head office Toronto, Ontario, has been organized to acquire by purchase or otherwise periodicals, newspapers, magazines, journals, and other literary works, to engage in the business of paper-makers, foresters, pulp manufacturers, pulp merchants, printers, and all lines necessary for publishers. The charter members are: Charles Henry Murray, magazine proprietor; Albert T. Brinton, circulation manager; Normand Klein, publisher; Walter Rathbone, accountant; and Harry G. Coleman, travelling agent. This is the Canadian branch of the London, Eng., Harmsworths.

The North American Land & Lumber Company, Limited, has been incorporated under the laws of British Columbia, their chief powers being to carry on business in the Province of British Columbia and throughout the Dominion of Canada as timber merchants, sawmill proprietors, lumbermen, pulp manufacturers and timber growers, and to buy, sell, grow, prepare for market, manu-

facture, manipulate export, import, and deal in saw-logs, lumber, timber and wood of all kinds, and to manufacture and deal in articles of all kinds in the manufacture of which timber or wood is used: to build, erect, purchase, acquire, possess and operate factories, sawmills, pulp mills, paper mills; to sell, improve, manage, develop, exchange, lease, mortgage, dispose, turn to account or otherwise deal with all or any part of the lands, timber licences property and rights of the company. The stock capital of the company is \$500,000.

Vancouver is to have a Chinese newspaper says the "News-Advertiser." "Local Chinese are about to begin the publication here of the first Chinese newspaper to be issued in Canada. This matter was talked of last fall, and action was taken with the result that arrangements have been completed. The first number will make its appearance next month. The news of the city, as well as the most prominent of Canadian and foreign telegraph will be given daily, and a portion of it will be printed in English. The largest portion will be in Chinese, the type to print which is being imported from China. The publication will be headed with the name of "Wah Ying Yat Bo." The officers of the company are: C. T. Lam, president; Charlie Hum Chung, treasurer; and Yucho Chow, secretary and reporter, with thirteen other directors. The editor is on his way here from China. It is not improbable that representatives from this paper will be present at public and other meetings in Vancouver, as it is the intention to give the Chinese in their own language the happenings of Vancouver."



AMONG THE MILLS.

While oiling machinery in the pulp mill at Chatham, N. B., on May 14th, David Vantour, an employee, was struck on the head by a belt and seriously injured. He was taken to the Hotel Dieu for treatment. Vantour is seventeen years old and belongs to Kent County.

The St. John Sulphite Company's mill at Mispec, N. B., has started again after some repairs.

The plant of the Miramichi Pulp and Paper Company at Chatham, N. B., will be considerably enlarged this summer.

A fatal accident occurred on May 9th at the St. Francis mill of the Canada Paper Co., the victim being Aubert Hicks, who was employed as oiler and cleaner about the machinery. The circumstances of the accident are not quite clear, but it is understood that a pulley burst, Hicks receiving a blow on the head which fractured his skull, and death followed quickly. Hicks was upwards of 60 years old and unmarried.

A man named Marks Burn recently met with a very painful accident in the Mispec pulp mill. Burn fell on a belt and became entangled with some of the machinery. When extricated he was suffering intensely. A conveyance was procured and the injured man brought to the hospital. On examination it was found that he had two ribs and his collar bone broken. Although his injuries are severe and will take considerable time in mending, they are not of a serious nature.

J. C. Waterhouse, of Sherbrooke, P.Q., is the Canadian representative of the Boston Belting Company, of Boston, Mass., original manufacturers of high-grade belting hose, packing, deckels, rubber-covered rolls and mechanical rubber goods of every description. In addition to doing an extensive business for this firm he has also established connections with some of the large manufacturers of pulp and paper mill machinery, steam and power pumps, and he is in a favorable position to give quotations on almost any machinery required for pulp and paper mills. Mr. Waterhouse solicits correspondence from pulp and paper manufacturers requiring machinery or mill supplies.

Dick's Original Balata and Canvas belting has been largely used in the most successful Canadian pulp and paper mills for a number of years and

is giving unqualified satisfaction. The belting, or particulars regarding the same may be had from J. S. Young, Hospital Street, Montreal. His announcement appears regularly in the "Pulp and Paper Magazine."

B. S. Roy & Son, Worcester, Mass., have received an order for the large portable calender roll grinder built. This machine is to go to Ragnar Flodquist, Stockholm, Sweden, who is a dealer in paper mill machinery, the machine being built for a large paper mill in Sweden. It is to grind rolls with 158" surface, and will be fitted with three emery wheels, 34", 44" and 50" diameter.

Chief Justice Tuck, of St. John, N. Brunswick, gave judgment on June 1st in the case of Braydon vs. St. John Sulphite Company in favor of the plaintiff. The case was one for damages resulting from a dam which was erected on Mispec by the pulp mill company, the plaintiff claimed did serious damage to his cranberry land. The judge fixed the damages at \$1,000. R. G. Munro appeared for the plaintiff, and C. Coster, K.C., for the defendant company.



"KNOCKING" BRITISH COLUMBIA

The London, England, correspondent of the New York "Paper Mill" has let out a "knock" to British Columbia for investment of British capital in the pulp and paper lines. It points to the failures of the Western Canadian Pulp and Paper Company, and the Canadian Pacific Pulp and Paper Company as projects which should scare British capital from that province. While it is true that these companies failed to get even a good start, it must be remembered that the conditions under which they were organized were not conducive to any other result, and the fault probably lies as largely with the investors as with anyone concerned. In every new country there are "wild cat" schemes galore. There are some good schemes, and some more worthless, and every investor should be careful to know the ground.

are parting with his good money. In a few cases which we could cite in Canada and the United States, too, pulp and paper companies have been started by mere "adventurers," who knew nothing about the business, and were possessed only of the qualities which put them in possession of sufficient capital to eventually make a dismal failure of the undertaking.

There must be taken of every business venture, and the "Pulp and Paper Magazine" cautions all investors to see that experienced men are at the head of every new company seeking public capital to engage in the pulp and paper industries. The fault does not lie in the hurry, but in the character of the people who would be its industrial leaders.



PAPER VERSUS RUBBER INSULATION.

In the "Engineering News," W. I. Wyn discusses the relative merits of the two articles for electric cables, giving for his particular class the cables used for three-phase distribution substations in cities. To my astonishment he makes the following statement: "A manufacturer of rubber cables will tell you that no self-respecting engineer will instal paper cables, on account of their unreliability."

At the present time there are enormous quantities of paper used for cable insulation, but paper is likely to get a bad name if it is badly selected. It must have the necessary physical and durable qualities. For the very best work a pure manilla paper remains to this day unequalled. It has stood the test for twenty years or more. We cannot discuss the matter in detail, but we might mention in addition to the actual insulating qualities as ordinarily determined, it is necessary to take into consideration what is called the specific inductive capacity, and it must not be forgotten that the paper in the condition in which it reaches the cable manufacturer is different to that in which it exists in the finished cable. Paper for such work is not used as is, but before use undergoes a

process whereby the air and atmospheric moisture are eradicated, after which it is impregnated with hydro-carbons of a special nature preparatory to its being wound upon the cable. We are not justified in assuming that even the best and most carefully prepared wood paper is equal to manilla, but it is quite likely that a badly and carelessly prepared manilla paper may prove to be inferior to a carefully prepared and selected wood paper. There must be an absence of pinholes, mineral spots, dirt, etc.

We have from time to time examined a large number of papers for this particular purpose, and can fully appreciate the special qualities needed to suit such requirements. "The proof of the pudding is in the eating," and for insulated cables manilla has stood, without appreciable deterioration, for upwards of twenty years, and even the best wood papers have not had the same chance for the purposes of comparison; it is therefore somewhat premature to venture an opinion, but I have my doubts about wood pulp for high tension currents. There is, however, a special paper now being carefully tested which is likely to outdo manilla.

Paper has been used by the Post Office in large quantities for wrapping round wires which are carried in bunches through tubes, in which case the paper has not undergone the process of impregnation with hydro-carbons, and as there is no protective medium against the atmosphere, it is important that the atmosphere surrounding the paper should be kept dry, in order that the paper may retain its insulating qualities. I examined into this class some few years ago and had the special requirements explained to me at length by one of the leading officials. If once the paper becomes moist its insulation breaks down.

I went further into this subject with my brother, A. A. Beadle, some years ago. For the purpose of testing the moisture question he determined the insulating qualities of different kinds of cellulose, paper included, varying the atmospheric conditions. From these results we plotted out curves showing how

the insulation diminished as the amount of moisture in the cellulose increased. We did the same with the different samples of vulcanised fibre. These results were very instructive, but we have never published them. On beginning with a cellulose containing say, 15 or 20 per cent. of moisture, and gradually diminishing the moisture down to zero, the increased resistance is very marked. In fact, paper or any other form of pure cellulose in a very dry condition has high insulating qualities; but inasmuch as paper under ordinary atmospheric conditions contains anywhere from 7 to 12 per cent. of moisture, its insulation is inferior to that of many non-hygroscopic substances. Nevertheless, the insulation is quite sufficient and satisfactory for many practical purposes.

Seeing that the insulation broke down so readily we determined the effect of introducing moisture, and found that cellulose when thoroughly wetted becomes a better conductor of electricity than ordinary water.

In conjunction with Messrs. Cross and Bevan I pursued these researches further, and they led us into the domain of electro-chemistry. We found that pure fibre wetted with pure water would permit of the ready deposition of pure

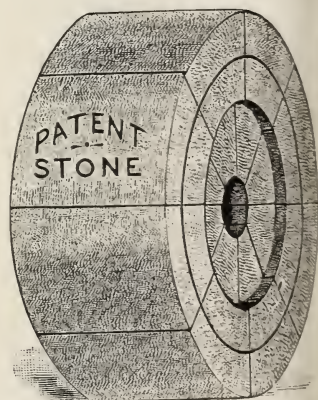
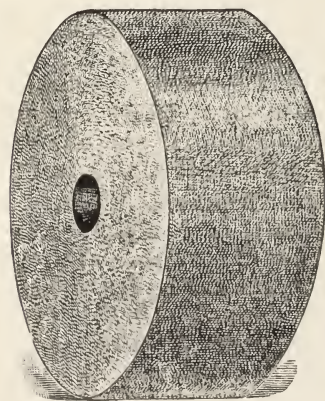
electrolytically deposited copper, with a feeble current of low voltage. Some of these researches were published in the journal of the Chemical Society whilst others—the greater bulk of them—we abstained from publishing in view of the fact that they indicated the possibility of important industrial developments. I feel, however, that we may with advantage disclose some of them. The peculiar property of cellulose, whether as a twisted fibre or in the form of blocks of paper, was demonstrated in a startling and uncanny manner by late Lord Armstrong at a "soirée" of the Royal Society at which I was present as it happened to be the occasion when I demonstrated a small instrument called the electrograph. By passing a strong current of electricity through water in which a cotton thread was suspended, the cotton was made to travel like a cork through the liquid, and reversed its position when the current was reversed. I have sought for a further explanation of these hitherto unobserved and peculiar phenomena, but the secretary of the Royal Society could give no further information than was given at the time the demonstration, which amounted practically to nothing.—C. Beadle, in "Paper Making."

PULP STONES

ENGLISH, GERMAN and SCANDINAVIAN

ALSO THE

PATENT UNIVERSAL



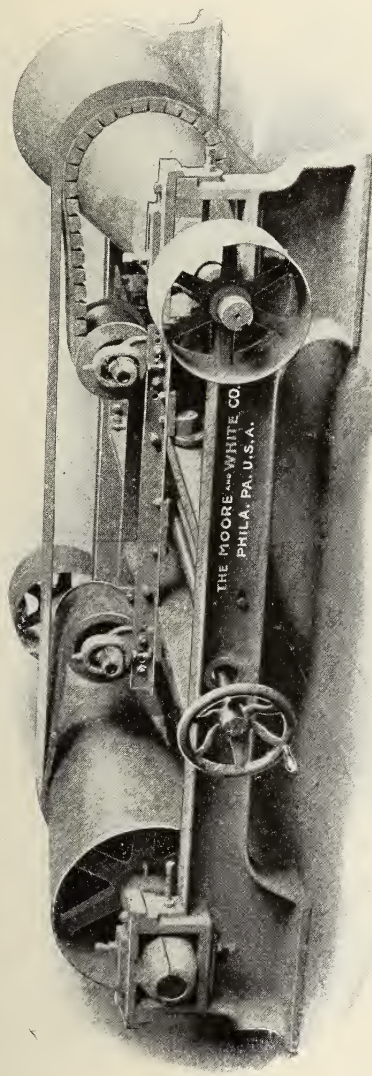
the construction of which gives it advantages not found in the one piece stone

Let us tell you about them

JEAN FREESE

132 NASSAU ST., NEW YORK, U.S.A.

"Moore & White" SPEED CHANGE for Paper Machines.



WIDE BELT.

PERFECT CONTACT.

ANY DESIRED RATIO OF CHANGE.

Absolutely No End Thrust or Tendency Sidewise of
Transformers or Driving Belt.

The Moore & White Co.

PHILADELPHIA, U. S. A.

BUILDERS OF PAPER MAKING
MACHINERY

ESTABLISHED 1878

George E. Hanson**Expert Manufacturer of High-Class****FELTS****FOR SULPHITE AND GROUND WOOD PULP MILLS**

Only best of stock is used in making these goods. I am supplying some of the best Mills in Canada, among them being, The E. B. Eddy Co, Hull; J. R. Booth, Ottawa; James Maclaren Co., Buckingham, Que.; Nova Scotia Pulp Co., N.S.; Lake Megantic Pulp Co., Lake Megantic, Que.; A. J. Morrill, Nicolet Falls, and others.

A trial order would be appreciated.

HULL WOOLEN MILLS**HULL, P.Q.**



Province of Quebec.

Department of Lands and Woods and Forests

FORESTS

Quebec, 24th March, 1906.

Notice is hereby given that, conform-
ly to sections 1334, 1335 and 1336 of
the consolidated statutes of the Pro-
vince of Quebec, the timber limits here-
after mentioned, at their estimated
value more or less, and in their present
state will be offered for sale at public
auction, in the Department of Lands
and Forests, in this city, on THURS-
DAY, 21st day of June next, at TEN
o'clock in the forenoon.

UPPER OTTAWA.

Block A.

Range 2.—10, 50 m.; 11, 50 m.

Range 3.—11, 50 m.; 13, 25 m.; 17,
18, 35 m.; 19, 27½ m.; 20, 22 m.

Range 4.—10 to 14, 50 m. each; N. ½
of 15, 25 m.; north part of N. ½ of 16,
50 m.; S. ½ of 17, 25 m.; 18, 50 m.;
19, 50 m.; N. ½ of 20, 24¾ m.; S. ½ of
20, 7½ m.

Range 5.—13 to 23, 50 m. each.

Range 6.—N. ½ of 10, 25 m.; N. ½ of
11, 5 m.; 13 to 16 and 20 to 23, 50 m.
each.

Range 7.—N. ½ and S. ½ of 6 to 13,
50 m. each.

Range 8.—N. ½ and S. ½ of 6 to 13,
50 m. each.

River du Lièvre, N.W. branch, Nos.
1 to 8, 50 m. each.

River du Lièvre, middle branch, No. 7,
40 m.; No. 8, 30 m.; No. 9, 65 m.

Upper Gatineau, 1, 2 and 3, 45 m. each;
4 and 5, 50 m. each; 6, 42 m.; 7, 8 and 9,
25 m. each; 10, 50 m.; 11, 35 m.; 12 to 20,
50 m. each; 21, 70 m.; 22 to 30, 50 m.
each; 31, 60 m.; 32 to 37, 50 m. each.

SAINT MAURICE.

Manouan 8, south, 30 m.; 9, north, 21
m.; Upper Saint Maurice, 15, 60 m.; 16,
38 m.; 28, 62 m.; 29, 35 m.; 30, 30 m.;
31 and 35 to 43, 50 m. each; 44, 49 m.;
45 to 66, 50 m. each.

SAINT CHARLES.

River du Moulin, 4, 12 m.; rivers aux
Écorces and au Canot, 39 m.; river aux
Écorces, 5, 29 m.; 6, 41½ m.; river au
Canot, 1, 26 m.; Grande Pikauba, 2, 38½
m.; 3, 38¾ m.

LAKE SAINT JOHN WEST.

Township Dablon, ranges 2, 3 and 4,
2½ m.; township Déchène, 18 m.

LAKE SAINT JOHN EAST.

Township Kenogami, No. 2, 2 m.

(Continued on Next Page.)

SAGUENAY.

River Malbaie, No. 17, 37 m.; township Callieres, 14 m.; rear township Callieres, 18 m.; Saguenay West, 1a, 10 m.; part of Saguenay, 3 and 4 west, 49 m.; Bergeronnes, 1 east, 25 m.; river Sainte Marguerite, No. 87, 24¼ m.

River Manicouagan: 8, 9, 13 to 28, each 50 m.

River aux Outardes: 2, 49 m.; 3, 45 m.; 4, 63 m.; 5, 50 m.; 6, 70 m.; 7 to 13, each 50 m.

Sault au Cochon: 1 east, 30 m.; 2 east, 36 m.; 3 east, 41 m.; 4 east, 33 m.; 4a east, 39 m.; 5 east, 40 m.; 5a east, 39 m.; 6 east, 60 m.; 7 east, 55 m.; 8 east, 46 m.; 9 east, 65 m.; 10 east, 68 m.; 2 west, 55 m.; 3 west, 50 m.; 4 west, 33 m.; 5 west, 38 m.; 6 west, 60 m.; 7 west, 64 m.

River Magpie: A, 52 m.; B, 42 m.

River Natashquan: 1 to 4, each 50 m.

River Piashte Bay: 1 to 8, each 25 m.

River Saint Augustin: 1 to 8, each 25 m.

GRANDVILLE.

Township Bégon, No. 1, 2½ m.

SAINT LAURENT DE METAPEDIA.

Township Assemetquagan, 63 m.; township Restigouches, river ranges 1 and 2, 1½ m.

RIMOUSKI EAST.

River Cap Chat, 1, 47½ m.; 2, 45 m.; 3, 45 m.; river Matane A, 48 m.

BONAVENTURE WEST.

Township Carleton, ranges 5 and 6, 3½ m.

GASPE WEST.

River Sainte Anne: D, 48 m.; 43¼ m.

GASPE EAST.

Grande rivière: T, 39 m.

GASPE CENTRE.

River Saint John: N, 37½ m.; 42 m.; P, 33 m.; Q, 28½ m.

CONDITIONS OF SALE.

No limit will be adjudged at less than the minimum price fixed by the department.

The limits will be adjudged to the highest bidder on payment of the purchase price, in cash or by cheque accepted by a duly incorporated bank.

Failing payment, they will be immediately re-offered for sale.

The annual ground rent of three dollars per mile is also payable immediately.

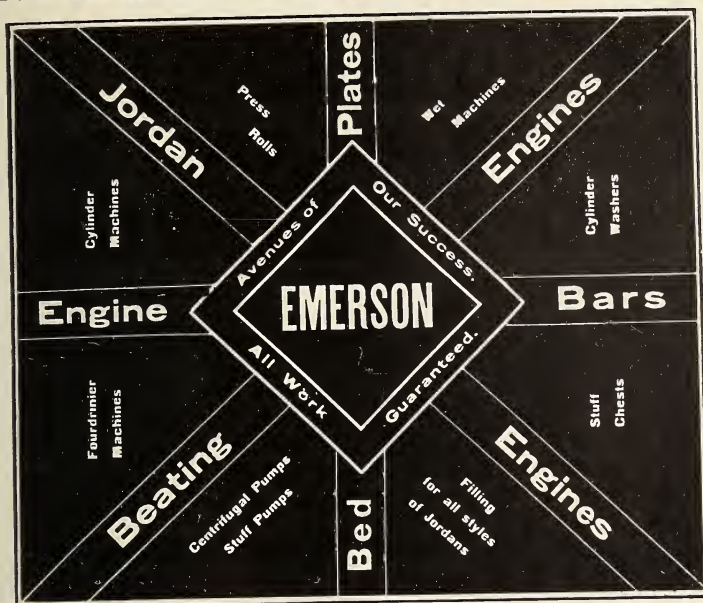
Those timber limits, when adjudged, will be subject to the provisions of the timber regulations now in force which may be enacted hereafter.

Plans of limits offered for sale will be open for inspection in the Department of Lands and Forests, in this city at the office of the Crown lands and timber agents in the different agencies in which said limits are situated, up to the day of sale.

N.B.—No account for publication of this notice will be recognized if the publication has not been expressly authorized to the department.

ADELARD TURGEON
Minister of Lands and Forests

EMERSON MFG. CO.



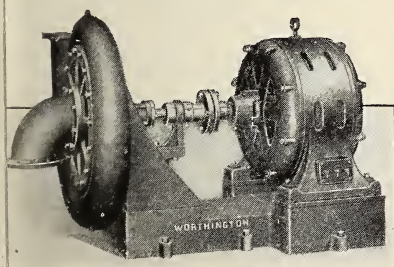
LAWRENCE, = = = MASS.^F

Worthington Turbine Pumps,

Single or Multi-Stage.

For all heads and capacities.

Specially adapted for pulp mill use.



Worthington Turbine Pumps have no guards, no springs, no valves, no rubbing surfaces, no reciprocating parts.

John McDougall Caledonian Iron Works Co., Limited, Montreal.

BUILDERS FOR CANADA.

DILLON MACHINE

COMPANY

BUILDERS OF

PAPER MILL MACHINERY

FROM NEW DESIGNS

Beating and Washing Engines, No. 1 and No. 2. Refining Engines, Stuff Pumps, Single, Double and Triple, all sizes, fitted with the Dillon Patent Valve Seating, Wet Machines, Stuff Chests, Horizontal and Vertical, all sizes, Single and Double Paper Cutters, Backstands, Dillon Patent Calender Doctors and Feeds, Jordan Filling, Roll Bars, Bed Plates and Cutter Knives.

OFFICE AND WORKS

LAWRENCE, MASS., U.S.A.

MIRAMICHI PULP & PAPER CO., Limited.

CHATHAM, N. B.

Manufacturers of High Grade Easy Bleaching

Sulphite Pulp

Suitable for Writing and Book Papers

LOMBARD & CO.

MANUFACTURERS AND IMPORTERS OF

Pulp Stones and Grindstones

OF EVERY DESCRIPTION.

QUARRIES at NOVA SCOTIA, CLIFTON, BAY DE CHALEUR, NEW
BRUNSWICK, under our own management.

OFFICE AND YARD:

236 and 238 A St., Boston, Mass., U.S.A.

WE ARE THE ONLY MANUFACTURERS MAKING A SPECIALTY OF

HAND-FINISHED GRINDSTONES.

Specially Selected GRIT for Paper Knife Grinding.

SPECIAL SIZES CUT TO ORDER

The Genuine English Newcastle Stone

UNEQUALED BY
ANY OTHER STONE
MANUFACTURED.

FOR WOOD PULP GRINDING.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

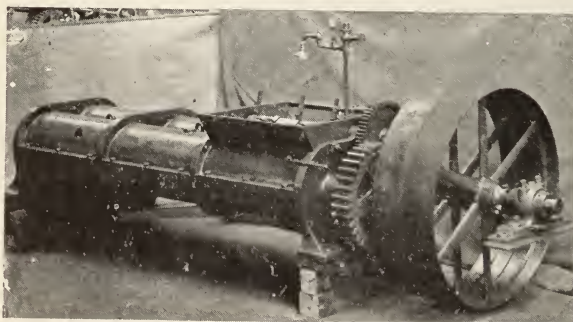
Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,
Ejector Vacuum Pumps — Bertrams Limited — Patent.

DR. C. WURSTER'S Patented Pulping Machines & Kneaders

For PULPING UP MACHINE "BROKE." OLD PAPER
STOCK, WASTE PAPERS, DRY WOOD PULP, &c.



Three Segment Pulping Engine—Trough 800 and 2,000 lbs.

OVER 200 SOLD

These Machines with the same power, do from TWO to FOUR TIMES the WORK of STONES without Shortening, Affecting, Creasing, or Wetting the Fibre in any way, or Changing the Colour of the Sizing.

Beaters not required in making Boards from Old Paper Stock.

Can be used for Kneading Clay and other fillers, as well as for Kneading Dr. Bleaching Powders, instead of the Bleaching Mill.

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.
ENGLAND.

LP AND PAPER MARKETS.

Toronto, June 14, 1905.

Ground wood is quoted at \$12 to 20 at mills in Canada, which means 19 to \$22.50 at United States mills. There is a steady demand in the home market, as paper manufacturers have practically no stocks on hand now, and will be buying in larger quantities to come.

There is a good demand for all grades of paper, including news, although there is fear in some quarters of over-production, owing to increased facilities in the country. There was no commotion among the paper box makers, owing to a leading firm, which has supplied them, going out of the manufacture of box boards, and new contracts will have to be made at advanced prices. Canadian coating mills are unusually busy, and it is pleasing to note the increased demand for Canadian-made papers of the better class.

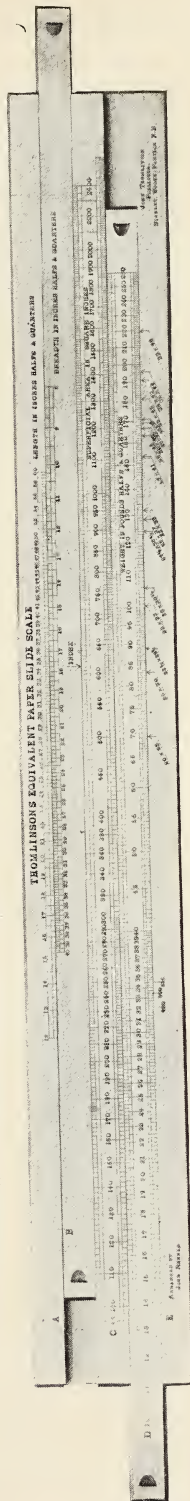


HULL'S OFFER TO EDDY CO.

For some time past there has been a dispute between the city council of Hull and the E. B. Eddy Company, regarding water rates, and the company has withheld payment for the past eighteen months. At present the city levies \$200 per year on the company, but an agreement is offered to the company whereby for privileges along Brewery Creek, the city will reduce this to \$2,000 per year for ten years. The city wishes to secure a lease of the land twenty-five feet from the east side of the creek for a distance of two hundred and fifty-two feet from the Aylmer Road, with the right to fence it in, all to cost a nominal rental of \$1 per year, the company to retain the right of way across the creek to its tracks. The arrangement is all contingent on the company paying up the arrears of water rates for the eighteen months.

YOU NEED IT

For calculating the relative weights of different sizes of paper and similar calculations employing "the rule of three."



Write now for booklet.

Price in Waterproof Cardboard, \$3.50 each.
Price in Extra Finished Boxwood, \$15.00 each.

84 WELLINGTON STREET WEST, TORONTO, CANADA.

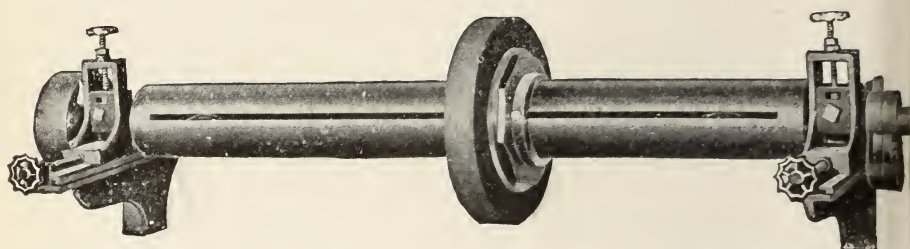
RITCHIE & RAMSAY, Limited,

ELECTRIC POWER IN NEW YORK STATE.

The Niagara Falls, N.Y., correspondent of the "Paper Mill" says:—"The paper and box making industries are both directly and indirectly interested in a movement among various municipalities in Western New York to bring about a reduction in the price of electric power.

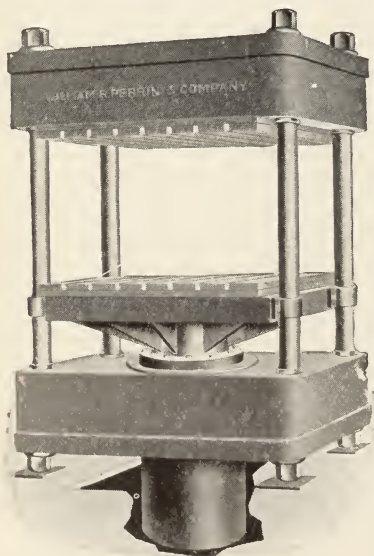
Over on the Canadian side of the river in the Province of Ontario, the municipal movement has gained quite a bit of headway, and it is a similar plan which the Western New York municipalities contemplate adopting. A committee of twenty-five has been appointed to set the date and place for a conference to be held in the next two weeks, when it is expected that the mayors or other representatives of twelve or fifteen cities

"The Roy Patent Calender Roll Grinder



B. S. ROY & SON, - Worcester, Mass. U.S.A.

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders,
Pumps, Heaters.

F. H. DAVIS & CO.,
161 Devonshire St.,
BOSTON, - - MASS.

Western New York will be present and voice their views on the power question. Possibly they may adopt the figures obtained by the Ontario commission as to the cost of development of power at Niagara, and its transmission for various distances. Should they decide on this course, an engineer will no doubt be asked to verify the figures before acceptance and presentation to the New York conference. Ultimately they may suggest a government-owned power plant at Niagara.



TO UTILIZE SAWDUST.

That John R. Booth will have every modern improvement tending to better production and economy in his new paper mills is already much in evidence in those in touch with the situation. His latest plan is to substitute sawdust for coal. He expects thereby to effect an economy of 50 tons of coal per day which will greatly reduce the cost of producing the paper. At the present time the sawdust and refuse of the lumber mills are now consumed by an incinerator.

C. D'Oyley Mears & Co.,

PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
Cardrobe Chambers, Queen Victoria Street,
London, E. C.

RAG AND PAPER STOCK MARKETS.

Montreal, June 14th, 1906.

The rag and paper stock market shows no interesting features, but activity is looked for within a few weeks.

Prices are as follows:—

No. 1 white shirt cuttings.	\$5.50 to \$6.00
Light print cuttings.....	4.00 to 4.50
Unbleached cuttings	4.75 to 5.25
White shoe clips.....	4.50 to 5.00
Colored shoe clips.....	3.25 to 3.75
Domestic white rags.....	2.25 to 2.50
Blues and thirds.....	1.25 to 1.40
Roofing stock .....	.90 to 1.25
Waste papers .....	.35 to .40
Manilla rope	3.25 to 3.50
Bagging	1.00 to 1.10



—The Standard Paper Company is negotiating with the town of Cannington, Ont., for the establishment of a paper mill in the town. The company asks a right of way, a cash bonus of \$10,000 to build an electric railway for their own and public uses into a marsh in the Township of Brock.

THE RIORDON PAPER MILLS, Limited.

Merritton and Hawkesbury, Ont.
Merritton Mill—Newspaper, Hanging
Paper, Wrapping Paper and Building
Paper and Sulphite Pulp.
Hawkesbury Mill—Sulphite Pulp.

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, - - - - 82 Beaver Street, New York.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway) ..	Kirkegaden No. 20.
GOTHENBURG (Sweden) ..	Lilla Kyrkogatan No. 20.
MANCHESTER	Guardian Buildings (opposite Exchange).
LONDON	77a Queen Victoria Street, E.C.
PARIS	Rue de Londres No. 29.
ANGOULEME (France) ..	43 Rue Louis Desbrandes.
LYONS	54 Cours Gambetta.
MILAN	24 Via Solferino
TOLOSA (Spain)	18 Calle San Francisco.
NEW YORK	99 Nassau Street.
ST. PETERSBURG	Little Podjascheskaja House, 4. Qu. 16.

Telegraphic Address :

“WERTHEIMO, HAMBURG.”

**BARKER,
CHIPPER,
PAPER-CUTTER**

MACHINE KNIVES
Of Every Description.

The Peter May Knife Co., Limited, Calt, Ont.

The PULP & PAPER TRADING CO.,
TEMPLE COURT BUILDING, NEW YORK CITY.
DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.



JOHN KNIGHT & CO.,
CHINA CLAY IMPORTERS,
SPRINGFIELD, MASS.

Sole Agents
for the ...

L.G.V., W.F.,



and other
Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any
artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

PAPER MAKERS' DIRECTORY.

The 1906 edition of the Directory of Paper Makers of the United Kingdom, published by Marchant, Singer & Co., 47 St. Mary's Ave., E. C., London, England, has been received at this office. The directory is conveniently arranged, and contains in addition to the list of mills in England, Wales, Ireland, and Scotland, a list of enamellers, paper makers' representatives, and London wholesale stationers. It also classifies the makes of paper with the makers' names, and has a complete list of trade designations used as water marks by the various makers and wholesale stationers. A very valuable addition to the work is a classification of the various standard sizes of paper.



At the assizes, which opened at Sherbrooke, P.Q., on June 8th, the case of Mrs. John Cameron vs. the Royal Paper

Mills Co., of East Angus, was on the list for hearing. The action is for \$10,000, claimed by plaintiff for the loss of her husband on January 10, 1905, while in the employ of the company.

B. C. Howard, of Sherbrooke, P.Q., has closed a deal in Beauce for the sale of about 12,000 acres of timber limits, known as the Famine River property. The purchasers are the Silsby Lumber Co., of West Burke, Vt., who will erect at once one of the best up-to-date saw-mills. This mill will be at the terminus of the new extension of the Quebec Central Railway. The price paid is said to be \$120,000.



—The largest wood-pulp factory at Mannheim, Germany, earned \$1,055,000 in 1905, against \$784,700 in 1904. A 20 per cent. dividend was declared. This concern has 2,000 employees, and produced 56,565 short tons of pulp last year.

STUFF PUMP

This pump is made in three sizes, 5", 6" and 8".

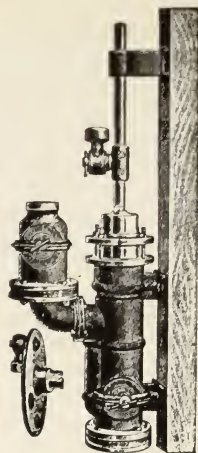
The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by

T. McOUAT & SON, Lachute, Que.,



MAPLE LEAF
STITCHED COTTON DUCK
BELTING
DOMINION BELTING CO. LTD.
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of

GRADED RAGS, PAPER STOCK
ROPE BAGGING, ETC.

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction Board.
Mills at Sault au Recollet, P.Q.

ATTERBURY BROTHERS, Incorporated.

Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

WIRE PULP MATS

Perforated Copper, Brass and Steel. Wire Rope. All kinds.

Wire Guards for Mill Windows. Refuse Burner Cloth, Etc.

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

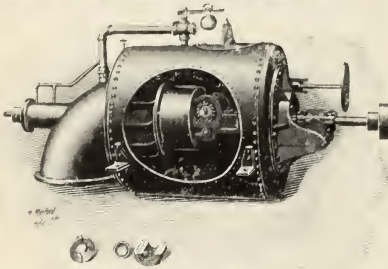
Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.

BELOIT IRON WORKS,

BELOIT, WIS., U. S. A.



CROCKER TURBINE



Various styles of setting to suit different locations, and heads up to 150 feet. If you have a Water Power to develop, we should be glad to have you write us. Ask for bulletin No. 200.

SALES OFFICES:
TORONTO
ROSSLAND
HALIFAX
VANCOUVER

THE JENCKES MACHINE Co.,

EXECUTIVE OFFICE

LIMITED.

61 Lansdowne St. Sherbrooke, Que.

PLANT: Sherbrooke, Que.
St. Catharines, Ont.

We manufacture a full line of

PULP MILL MACHINERY



=====
We repair and
make over
Cylinder
Moulds.

=====
Write for Special
Catalogs.

The Waterous Engine Works Co., Limited

BRANTFORD, - CANADA.

“CHALK WHITE” COATED BOOK PAPER.

The best and whitest coated paper sold. — All regular sizes and weights in stock.

The Cover of this magazine is our Art Litho Cover, stocked in four sizes, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Windsor Mills, Que. = Montreal. = Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

J. S. YOUNG, = = Sole Agent for Canada.

14 Hospital Street, Montreal.

R

“TURBINE WATER WHEELS”

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from
S. MORGAN SMITH Co.,
YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company,	14,000 h.p.
Montreal Cotton Company,	7,000 h.p.
Sturgeon Falls Pulp Co....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

JOSEPH H. WALLACE, C.E.

M. AM. SOC. C. E. M. CAN. SOC. C. E.

INDUSTRIAL ENGINEER.

TEMPLE COURT BUILDING, NEW YORK

CABLE ADDRESS "TRIPLEX," N.Y.

MANUFACTURING PLANTS AND POWER DEVELOPMENTS
REPORTS ON INDUSTRIAL PROPERTIES, APPRAISALS, ETC.

A. V. JAASTAD, M.E., CONSULTING STEAM ENGINEER.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland, = = Montr

PULP AND PAPER MAGAZINE OF CANADA

VOL. 4.

TORONTO JULY, 1906.

NO. 7.

FEATURES OF THIS NUMBER

A Visit to Ritchie & Ramsay's Coating Mills

The Possibilities of New Ontario

Recent Canadian Patents issued for Pulp and Paper Mill Machinery

Disposal of the Dryden Pulpwood Area in Rainy River District

Results of the Sale of Timber and Pulpwood Limits in Quebec

Established 1837

Incorporated 1867

RICE, BARTON & FALES

MACHINE & IRON CO.

CHARLES S. BARTON, Prest. & Treas.
GEORGE S. BARTON, Secretary.

WORCESTER, MASS.

BUILDERS OF

Modern Fast Running and Heavy Four-
drinier and Cylinder Machines for Making
Paper, and Drying Pulp.

Double Drum Vertical Winders and Re-Winders.

Upright and Revolving Reels.

Large and Heavy Wet Machines.

Revolving Cutters and Layboys.

Hill Patent Diagonal Cutters, which can be equipped with
Slitting Arrangement, and Reeling Off Bars.

Chilled Iron Calender Rolls.

Screens and Screen Plates.

Stuff, Suction and Fan Pumps.

Patent Top and Double Edged Slitters.

Pneumatic Re-Winders for Small Rolls.

Additions and Changes made to Old Paper Machines
Greatly Increasing Speed and Capacity.

Makers of the Moore Patent Horizontal Revolving
Screen for Ground, Soda, and Sulphite Pulp.

Foreign Phosphorbronze Fourdrinier Wires,

*Sulphite Pulps, Paper Stock and Rags,
Bleached Straw Pulp, also China Clay.*

JEAN FREESE, Vanderbilt Building, **NEW YORK.**
132 Nassau Street,

FOURDRINIER MACHINE WIRES CYLINDER COVERS

Unequalled for Strength, Smoothness and Long Life.

GEORGE CHRISTIE, LIMITED

Ladywell Wire Works, **GLASGOW, SCOTLAND**

Agent—**THOMAS L. PATON,** 30 St. Francois Xavier Street, **Montreal,** who
holds stock for immediate delivery.

EDWARD J. WELCH, Pres. | **EMMONS CROCKER,** Vice-Pres. | **ARTHUR S. MORSE,** Secy.
ADAMS CROCKER, Treas. and Managing Director. | **HENRY W. S. DOWNS,** Supt.

Union Screen Plate Company of Canada, Limited.

Factory, Lennoxville, Que., Offices: { Lennoxville, Que.
Fitchburg, Mass., U. S. A.

Screen Plates



the "Union" Bronze (best phosphorized cast metal) Plates
for Sulphite Mills. The Standard Rolled Brass Plates.

The "Union" Cast Metal Suction Plates.

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

We carry in stock a large supply of the different sizes of both metals and can fill large orders promptly.

Bentley & Jackson

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

ESTIMATES ON APPLICATION.

A Machine of Quality

Every owner of a pulp mill or rossing plant is bound to be interested in . . .

The Moreau Pulpwood Barker

It combines all the essential points, speed, strength and economy. Capacity 3 cords per hour, with 2 men and 6 horse power. Can be run the year round in green, dry or frozen wood.

It takes only 16 to 18 per cent. discount off the wood, and **is a money saver from first to last.**

WRITE TO-DAY FOR FURTHER PARTICULARS.

The Moreau Barking Machine Co., Ltd.

C. MANSEAU, Selling Agent for U.S. and Canada, Mitchell, Quebec.

RELIABLE AGENTS WANTED.

Norwood Engineering Company,

FLORENCE, MASS., U.S.A.

Builders of the highest grade of Paper Finishing Machinery, Rag Dusters, Belt Power Elevators, etc. Contractors for Filter Plants of any size, Industrial or Municipal, Gravity or Pressure system.

BERTRAMS, LIMITE

Papermakers'

Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermaking
embracing British, American and Continental Improvements

C. H. JOHNSON & SONS, Ltd.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rollers

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

Agents for Canada: C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL

INDEX TO ADVERTISEMENTS.

Try Bros.....	52	Little, Arthur D.....	9
Iron Works.....	53	McDougall Caledonian Iron Works, The	
le & Jackson.....	4	John.....	43
ra's, Limited.....	6	McOuatt & Son, T.....	52
Black Clawson Co., The.....	7	Mears, D'Oyley & Co.....	49
it Co., F.....	10	Miramichi Pulp & Paper Co.....	45
nt, Mond & Co., Limited.....	56	Moreau Barking Machine Co.....	5
ad Paper Co.....	55	Moore & White Co.....	43
an Rubber Co. of Montreal.....	8	Norwood Engineering Co.....	5
le Gottheil & Overton.....	9	Paton, Thomas L.....	3
la Clay Co.....	48	Perrin & Co., Ltd., Wm. R.....	48
ist, J.....	50	Perron, Gagnon & Co.....	42
is, Limited, George.....	3	Porritt & Sons, Joseph.....	10
is Co., F. H.....	48	Porritt & Sons, Limited, Samuel.....	56
e J. A.....	9	Porritt Bror. & Austin.....	6
on Machine Co.....	44	Pringle & Son, T.....	9
ion Belting Co.....	52	Pulp & Paper Trading Co., The.....	51
rn Mfg Co.....	43	Pusey & Jones Co.....	46
bs & Moody.....	9	Quebec & Lake St. John Ry.....	8
h, Julius.....	10	Rice, Barton & Fales.....	2
se Jean.....	3	Ritchie & Ramsay.....	47
se Jean (Pulp Stones).....	184	Riordon Paper Mills, Ltd.....	49
eng, The B, Wire Co., Limited.....	52	Roy & Son, B. S.....	42
se, Geo. E.....	45	Smith Co., S. Morgan.....	55
d George F.....	9	Union Screen Plate Co.....	3
vworth & Sons Co., Limited, Alfred.....	12	Union Sulphur Co., The.....	49
Life Co., Limited, Peter.....	51	Vogel, C. H.....	9
ce Steam Boiler Works.....	40	Valley Iron Works Co.....	39
ne J. H., & Sons Co.....	10	Walker, J. R. & Co.....	52
ig R.....	56	Wallace, Jos.....	56
ntional Pulp Co.....	9	Waterous Engine Works Co., Ltd.....	55
k Machine Co., Limited.....	12 & 54	Wertheim & Co., A.....	50
sa & Sons, Limited, C. H.....	6	Whittaker, Richard.....	11
son & Co., A.....	11	Wilson, Paterson & Co.....	12
bl, Herbert S.....	9	Winn & Holland.....	50
th & Co., John.....	45	Wurster, Dr. C.....	46
d Coffin, and H. S. Ferguson.....	9	Young, J. S.....	55

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.

Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

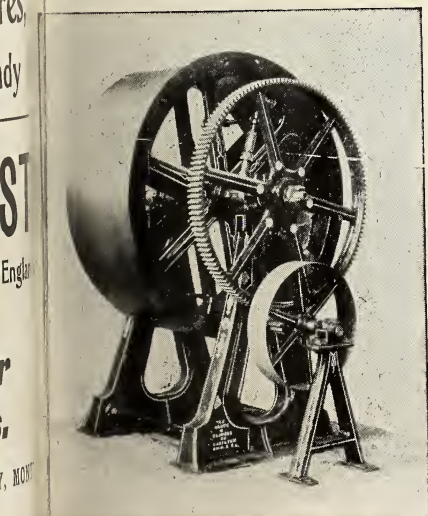
from new patterns and de-
signs embodying the latest
improvements.

Foot-power Perforators.

3 Roller Ink Mills.

Evaporating and Drying
Machinery.

We Solicit Correspondence.



Honest

Value

Com-
plete
Satisfac-
tion

We Make a Specialty of Covering
Couch, Press
 and
Squeeze Rolls
 For **PULP** and
PAPER MILLS.

Rubber Diaphragms
 for Screens.
 Deckle Straps.

Rubber Belting,
 Packings, Valves,
 Caskets, Fire,
 Steam and Water
 Hose, etc., etc.

WRITE US FOR ALL Your
 Requirements in Rubber.

THE CANADIAN RUBBER CO.
OF MONTREAL, LIMITED.

SALES BRANCHES:

155 Granville Street, Halifax, N. S.
 Imperial Bank Building, St. James St.,
 Montreal, Que.
 Front and Yonge Sts., Toronto, Ont.
 80 Princess Street, Winnipeg, Man.
 Regina, Sask.
 Calgary, Alta.
 403 Cordova Street, Vancouver, B. C.
 Victoria, B. C.

D. LORNE MCGIBBON,
 Vice-President and Managing Director.

DROWNED AT SHERBROOKE

Two employees of the Brompton Paper and Paper Company, named John V. ville, and John Coteau, were drowned in the St. Francois River between Bractonville and Sherbrooke, on June 17. The two unfortunates and another employee went out in a boat to fix a boom. The boom was hung up in very rough water, and while in the act of clearing their boat upset, throwing the three into the water. The two mentioned above failed to come up, but their companion succeeded in swimming ashore.



TAPPING RAINY RIVER TRIBUTARIES.

The pulp-wood and timber concessions along the Rainy River have entered a vigorous protest against the tapping of the tributaries of that stream, and the diminishing of water-powers along the river, with the International Waterways Commission. This has been brought about through the work of the Minnesota Power and Canal Company, an American undertaking. If the plans are carried out, there will be a diversion of the streams that now empty into the Rainy River.



This Railway runs through Two Hundred Miles of the Finest Spruce Forests of America, through a country abounding in Water Powers suitable for Pulp and Paper Mills and other industries, and easy access to the Steamship Docks of Quebec.

ALEX. HARDY,
 G.F. & P.A.
 QUEBEC, P.Q.

J. G. SCOTT,
 General Manager

Arthur D. Little

93 Broad Street, Boston

CHEMICAL EXPERT and ENGINEER

SPECIALIST IN

Pulp and Paper making.

F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
101 Tremont St., Boston, Mass.

Designs, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and Piles Burners for the Sulphite Process.

F

GEORGE F. HARDY,

M. AM. SOC., M.E.
M. CAN. SOC. C.E.

Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of Mill Properties, Water Power Developments. Mutual Reserve Building, - 309 Broadway, NEW YORK.

"Asbestine Pulp" Filler

Superior to any Clay.

Delivered price on application.

INTERNATIONAL PULP CO.

New York City, U.S.A.

T. PRINGLE & SON

Specialties:—Pulp Paper and Fibre Mills, Hydraulic Developments and Electrical Transmissions

409, 410, 411, 412 Coristine Bldg.,
MONTREAL.

F

C. H. VOGEL

A. M. Can. Soc. C.E.

ENGINEER

OTTAWA, CAN.

WATER POWER

Paper, Pulp and Sulphite Fibre Mills

LEA & COFFIN, and H. S. FERGUSON, ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
Water Power Development and Transmission. Steam Power Plants.

CORISTINE BUILDING, MONTREAL.

A. S. FAIRBANKS, Assoc. Mem. Can. Soc. C. E.
Assoc. Am. Inst. E.E.

H. A. MOODY, B.S., M.E.,
Assoc. Mem. Am. Soc. M. E.

FAIRBANKS & MOODY

Industrial Engineers
Paper and Pulp Mills
Hydraulic Development

150 Nassau St., New York.

J. A. DeCEW, B.A. Sc.

Chemical Engineer.

SUN LIFE BLDG., MONTREAL

Specialist in Soda Fiber and Paper Mill Chemistry.

Patented Processes for Digesting, Causticizing, Evaporation, Recovery.

Consultation.

Advice.

Reports.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

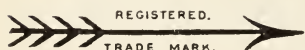
JULIUS FISCHER, Maschinenfabrikgegr. 1838. **Nordhausen am Harz** ca. 200 Arbeiter.

supplies as a long years and only specialty all machinery and complete installations for making surface-coloured (stained), coated, printed papers, Chromo, Art, Baryta Papers. For the preparation of gummed and marble papers. Wall paper printing and all auxiliary machinery, of the latest designs and modern construction.

First class references from all parts of the World

JOSEPH PORRITT & SONS**HELMSHORE** NEAR MANCHESTER**FELTS****and JACKETS FOR PULP and PAPER MILL**

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes



Agents for the States and Canada,

F. BREDT & CO., - 240 Water Street, NEW YORK

Established 1864

Incorporated 1888

J. H. HORNE & SONS CO.,**LAWRENCE MASS.**

MANUFACTURERS OF HIGH-GRADE

PAPER MILL MACHINERY

Beating and Washing Engines

"Jordan" Engines

"Horne" Improved Patent Engines

"Cloudman" Cylinder Washers

FOURDRINIER, CYLINDER & WET MACHINES

"Horne" Friction Cutters

Fan Pumps

Rag Knives

Cone Pulley Cutters

Stuff Pumps

Roll Bars

"Horne" Calenders

Calender Rolls

Bed Plates, Etc.

ORDERS FILLED ON RECEIPT**GET OUR CATALOGUE**

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal

**Sulphate
Alumina**

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y



127 BOARD OF TRADE BLDG., MONTREAL.

Agents for the United Alkali Co. of England

OFFER TO THE TRADE:

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.

F



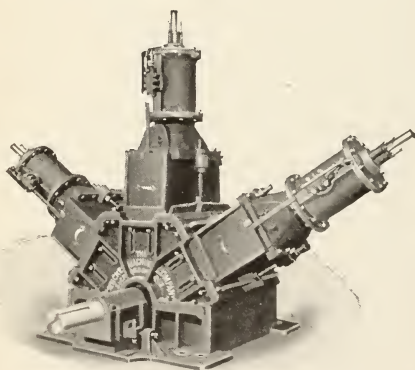
VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature, or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leathers. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Hawsworth & Sons Co., Limited,
Mill Engineers and General Furnishers
551 St. James Street, - Montreal.



PULP MILL MACHINERY

Grinders, Wet Presses,
Screens, Barkers,
Cut-off Saws, Etc., Etc.

Contractors for complete Pulp Mill Plants including Water Wheels.
Write for Catalog.

THE JENCKES MACHINE Co., LIMITED

TORONTO

Head Office: SHERBROOKE, Que.

ROSSLAND

HALIFAX

Works: Sherbrooke, Que.
St. Catharines, Ont.

VANCOUVER

THE PULP AND PAPER MAGAZINE OF CANADA

OL. 4.—No. 7.

TORONTO, JULY, 1906.

{ \$1 A YEAR
SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

SUBSCRIPTIONS: Canada, British Empire and the United States, \$1 a year; to Foreign Countries, 5s. a year.

The Pulp and Paper Magazine is published on the first Tuesday of each month. Changes of advertisements should be in the publisher's hands not later than the 10th of the month and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

E. B. BIGGAR,
PUBLISHER

A. M. FISHER, Business Manager.

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

THE QUEBEC WATER POWERS

The present differences between the Government of the Province of Quebec and the Federal Government resulting in the later ordering the Province not to dispose of the sixteen water-powers by lease at the recent sale, will remind many of our older readers of the memorable constitutional battles of twenty years ago between the late Sir John A. Macdonald, then Prime Minister of Canada, and the late Sir Oliver Mowat, the Liberal chieftain and Premier of Ontario, over the questions of Provincial rights. All who have in mind those stirring times will recall the famous "Streams Bill," with which the air, both of Parlia-

ments and of the country, was thick for a long period. Sir Oliver Mowat under the constitution undertook to regulate navigation upon the streams, and the power to use the water for navigation purposes. The occasion of the quarrel was that in the Ottawa valley two lumbermen each had limits on the Mississippi River. The man who had the lower limits put some works upon the river for the floating of his logs, but he would not allow the owner of the upper mill to use those works, which made the upper limits unavailable. The trouble resulted in Sir Oliver Mowat framing the bill referred to, which claimed that all streams and highways were for the common good, and that everybody had the right to use them.

The Act as passed by the Ontario Legislature was disallowed by Sir John A. Macdonald, who claimed that in that part of Ontario, since called "New Ontario," the land did not belong to the Province but to the Dominion. This started the long constitutional fight in which Sir John undertook as before, "to teach that little tyrant Mowat a lesson in constitutional law," but the gigantic battle resulted before the Privy Council in a victory for the Province.

The present issue in Quebec is hardly a parallel, but looking the question in the face it would seem that in this case,

as in the one quoted, the Provincial Government is in the right, and the Federal in the wrong.



Pulp & Paper Currency

The waterproof wrapping papers, backed by a coarse woven cotton fabric, are very well known in Europe, where they have been manufactured for years. In France they replace satisfactorily and to a very large extent the pasteboard boxes in which parcels are commonly forwarded in the United States. Where a pasteboard box arrives by express crushed and broken, and a part of the contents sometimes lost, a parcel wrapped in impermeable cloth-lined paper is delivered intact and undamaged. It has the further advantage of being very cheap. In Europe wooden packing cases are expensive, and these stout papers are very often used where in Canada a wooden box would be employed.



Forestry and Pulpwood

The Consolidated Mining & Smelting Co., of Canada, have ordered from the Jenckes Machine Co., Limited, Sherbrooke, Que., for use at the Centre Star Mine, Rossland, a 36" x 24" Farrel Bacon Ore Crusher, of which the capacity is 1,000 ton to 6" cube every ten hours. The shipping weight is 60,000 lbs.

The Rossland office of the Jenckes Machine Co., Limited, Sherbrooke, Que., has closed a contract with the Dominion Copper Co., Boundary Falls, B.C., for one of their 42"x30" Farrel Bacon Ore Crushers, also for a 10" x 16" Crusher of the same pattern. The capacity of the larger machine is 1,500 ton to 6" cube in a day of ten hours, and the shipping weight is 125,000 lbs. It is the largest

pattern jaw Crusher so far built anywhere. Several of these Crushers have been put in use by the Granby Smelter of Phoenix, within the past three years.

The Ontario Government Forest Rangers in Algonquin Park, as well as those in the northern part of the Province, report that the tamarac trees, which two or three years ago seemed to have been killed, are revivifying, and will soon be as fresh as ever. The saw fly was thought to be the cause of the apparent death of the tamaracs, its ravages extending as far north as the Hudson Bay regions.

A visit to Musquash, N.B., reveals a very busy state of affairs among the Inglewood Pulp Company and other interests in that district. There are now five mills in all running for the Inglewoods, including the saw mill which cuts the sections to be rafted across to the pulp preparer at Mispec. A corps of engineers and scientists under the leadership of Prof. Clarey, of Harvard, have just completed an investigation of several weeks relating to the water-power which may be developed in the district. Their operations centred about the Clinch and Lancaster streams, and while the pulp company are not saying much as to their intentions, it is believed locally that it is the intention to divert the flow of water in the Clinch stream into the Lancaster River, thus generating a great power, which would be used to operate a mill slightly below the junction. Only a short channel would be required to be cut, and the flow for the remainder of the distance would be down a natural valley.

All records for large trees in British Columbia were broken on June 15th, when a gigantic Douglas fir containing according to the British Columbia scale, no less than 18,500 feet of merchantable lumber, was felled at Camp A. Hastings-mill camp at Rock Bay. This huge log has been put into the water and will arrive in Vancouver next week in a boom being made up for the Hastings mill here. The immensity of the toothpick is easily realized when one measures off 11 feet

inches in height, which is the diameter of the log at the butt. At the small end its diameter is 4 feet 10 inches, and its length is 99 feet. The big fir was cut down by William Mackay, foreman at camp A, one of the pioneer loggers on this coast. Mr. Mackay stakes his long experience in the woods on the statement that the log contains more merchantable timber than any other ever cut in British Columbia. A photograph of the log, beside which a man is standing, shows the man as a midget alongside it.



LORD NORTHCLIFFE IN CANADA.

Lord Northcliffe (Sir Alfred Harmsworth), the noted English publisher, and proprietor of fifty-eight newspapers and periodicals, arrived in New York the first week in July. He was accompanied by Ernest Charles Whitley, principal writer on Blackwell's Magazine, and a leading contributor to the "Spectator," who is going to write a series of American impressions; H. W. Wilson, a leading English naval writer, and Bart Kennedy, well-known in England as the "literary tramp," who has gone on foot throughout every country of Europe and written about his travels. After spending a day at New York, the party left for the famous American summer resort, Newport, R.I., and then came on to Canada, where they will spend some time at Tobique River fishing as the guests of Lord Strathcona.

Afterwards Lord Northcliffe will go to Newfoundland to look after his pulp interests. He expects to remain in America until autumn.

To a representative of the "Paper Mill" at New York the distinguished visitor said:—

"Broadly speaking, I consider that newspaper owners, as a rule, have not sufficiently considered the great difficulties that lie ahead of them in securing their paper supplies," said Lord Northcliffe, referring to the increasing price of paper.

"My eyes were opened to the situation at the time of the Boer War, when the

price of paper rose universally. From that moment I made up my mind that my business should become independent of paper shortages, whether real or promoted by trusts, and I have been fortunate enough to secure from the Government of Newfoundland a vast concession of forest land, sufficient, I believe, to protect not only my own business, but a dozen other of the largest businesses in the United States, a concession which will, I believe, also bring added prosperity to that wonderful colony."



DRYDEN PULP-WOOD AREA LEASED.

The Ontario Government has accepted another tender for the lease of one of the pulp-wood areas recently advertised. The concession in question is known as the Dryden area, and is in the Lake of the Woods district. The successful tenderer is Robert McLaughlin, of Glencoe, Ontario. This area was formerly under lease by arrangement with the late Government, but the lease, with others, was cancelled by the present Government for non-fulfilment of terms.

In the present instance the successful tenderer will pay a cash bonus of \$6,000, and dues of forty cents a cord on spruce and twenty cents a cord on other pulp-wood cut. He must also erect a pulp mill and other essential works, expending on the undertaking \$200,000 within three years. The lease is for twenty-one years. The land remains vested in the Crown.

The Dryden area is not nearly so rich in pulp-wood as that which John R. Booth, of Ottawa, recently leased on a bonus of \$300,000, and dues the same as those mentioned. Mr. Booth, however, owing to his large establishment at Ottawa, is exempted from building a mill on the area he secured.

It is understood that Mr. McLaughlin will at once form a company to operate the concession according to the terms of his contract with the Government.

BRITISH GOVERNMENT SHOULD REDUCE POSTAGE.

At the Chambers of Commerce Conference in London, England, on July 12th, J. F. Ellis, of the well-known wholesale paper firm of Barber & Ellis, Toronto, opened proceedings by moving a resolution that, "in the opinion of this Congress, the British Government should adopt rates of postage such as would encourage the circulation of British newspapers and periodicals in all parts of the empire, and thus promote trade unity." Mr. Ellis said Canadians regarded the question as of great importance. They wanted English, as well as Canadian, literature, rather than American. Reduction of postage in Canada was followed by a surplus of revenue.

F. H. Mathewson, Montreal, seconding the resolution, said Canada was inundated with American literature, filled with advertisements damaging to commerce as well as to sentiment. The Canadian rate of postage was one-sixteenth of the British rate, yet it was farther from Halifax to Vancouver than from Liverpool to Canada.

Col. Ponton, Belleville, seconding, said it cost \$184 to send a ton of literature to Canada, while it cost only \$12 to send a ton of Canadian literature to England. The British Post-Office showed a profit of five million pounds sterling. He made a stirring appeal on Imperial grounds.

General Laurie said the Postmaster-General had stated that yielding to the Canadian demands would mean a loss of four million pounds of revenue. Although the Mother Country might not wholly grant the demands of Canada, he hoped that a material reduction would be made.

E. Parkes, M.P., Birmingham, said Postmaster-General Buxton was sympathetic, and expected a favorable outcome of the present negotiations with the Canadian Government.

The resolution was carried unanimously.

RITCHIE AND RAMSAY'S COATING PLANT.

A little over twelve years ago two enterprising young men well connected with the Canadian paper trade, Frederick H. Ritchie and Charles N. Ramsay, saw the opportunity in this country for the opening of a paper coating plant. While at that time a considerable quantity of the news and ordinary paper was of home manufacture, it was a fact that Canadians went abroad for nearly all their good stock, and for every particle of their coated paper as there was not a single coating plant in Canada.

These two men "taking occasion by the hand," at once embarked into an industry which, although uphill work for a long time, eventually turned out eminently successful, and the coated stock from the Ritchie and Ramsay mill gradually supplanted many of the lines formerly imported. To-day the output has an increasing sale in every part of the country. For a time they sold only to the wholesale and jobbing trade, but as their industry grew they secured a volume of business sufficient to warrant them in engaging a staff of travelling salesmen, who now sell direct to the printers, publishers, lithographers, paper box manufacturers, and photo supply dealers.

To the firm the original building looked big enough to accommodate their business for many years to come, but the plant soon proved too small, and required to be enlarged. The present floor space is more than double the original, the latest addition being a warehouse 100 x 100 feet. This building is divided by a fire-proof wall, one side containing the paper as shipped there in rolls to be coated; and the other the finished stock.

For shipping purposes the plant at New Toronto, is admirably situated. The firm possesses every facility for quick delivery, having a special spur line from the Grand Trunk Railway which runs close by.

Ritchie and Ramsay have a wide variety of manufacture. Their "Red Seal" coated book in the various weights and sizes is appreciated by the paper trade as the acme of quality in coated book. They also make duplex cover paper; extra litho paper; coated translucent card-board in all weights and colors, coated box-board paper, coated blotters, and calendered photo mounts. The plant throughout is well arranged, and the building possesses all the neces-

complete with drying plants, and the paper after going through the coating processes is conveyed on rotary machinery through a large drying-room heated to a high temperature. From the time the paper leaves the last portion of the coating machine until it is conveyed to the re-winding machine requires fifty-five minutes actual time.

The calendering and finishing rooms are well lighted and advantageously laid out. The latest additions to these rooms



sary light required for the delicate processes of coating. The large rolls of paper are brought from the paper warehouse into the machines by special conveying machinery, which does away with all arduous lifting. The departments for the preparation of the coating materials are well equipped and include all the latest devices known to the trade. In the coating room there are two large double coating machines of German manufacture, and a single coating machine of American make. These are

include a couple of rotary cutters from the Hamblett Machine Co., Lawrence, Mass., and a nine deck calender made by the Norwood Engineering Co., Florence, Mass., the largest and most successful builders of paper finishing machinery in the United States. There are also special machines of German manufacture for making photo mounts and coated blotters. The last, and one of the most useful pieces of machinery added was a Karl Krause paper cutter, the only one of its kind in use in Canada. This ma-

chine will cut a sheet 68 x 68 inches, and will trim the paper on all four sides without removal from the machine as is the case with ordinary cutters. This fills a want long-felt by printers who knew the advantage of having large sheets.

Any description of this plant would be inadequate without a reference to Thomas T. Hunter, who has been connected with the firm since it started. Mr. Hunter, who is an experienced paper mill man, came here from Scotland, superintended the construction of the plant, and the installation of the machinery, and has been in charge of the same ever since. He has contrived a number of valuable additions to the machinery, one being a calender roll grinder, and another a stand for holding the rolls which are being unwound and cut into the various sizes of stock by the rotary cutters.

The Ritchie and Ramsay plant, as already intimated, is located at New Toronto, on the suburban railway to Long Branch, the head offices being at 84 Wellington Street West, Toronto.



NEW PULP MILL PROPOSITION AT FORT FRANCES.

Those watching the progress of the power developments going on at Fort Frances, Ont., in connection with the Brooks-Backus Syndicate, will be interested in knowing that there is a change in the situation regarding the possibilities of a pulp mill there, and new interests are involved in the proposition. Mention was made in the last issue of the "Pulp and Paper Magazine" of the visit of a large mill owner from Bangor, Maine, to Fort Frances, and the Rainy River District. It now transpires that W. A. Preston, of Fort Frances, who recently held a pulp-wood concession there, had been acting in be-

half of Maine capitalists, and while nothing definite is given out, it is said by the "Fort Frances Times" on good authority that Mr. Preston has closed the deal in the interested parties, and that a new pulp mill will be erected there this year on the site now owned by Mr. Preston and formerly occupied by the old Crown Lands office. The site is admirably situated, close to the power dam and railway, and should make a good mill property. According to the terms of sale set forth in the conditions imposed by the Government, the mill must cost not less than \$100,000. Such an industry for Fort Frances will mean the employment of at least 100 to 150 men, and will be the means of other like industries locating here as well. Mr. Preston has issued instructions to have the contractors of the dam vacate this property at once.

A peculiar situation has developed at International Falls, Minn., and Fort Frances, where the large power dam is being constructed. The duties of some of the superintendents and foremen of the work require them to inspect work on both sides of the river from time to time, but the Canadian law against alien contract labor has been applied to prevent this. It may result in a duplicate force for each side in order to comply with the law, although one set of men is sufficient if allowed to work back and forth.



CUSHING MILL SALE ON SEPTEMBER FIRST.

In the matter of the winding up of Cushing Sulphite Fibre Co., Limited, St. John, N.B., an application was made on June 15th, before His Honor Judge McLeod, for postponement of the sale, which was set for Saturday, June 16th. A postponement was granted until September 1st. J. D. Hazen appeared for the liquidators; W. A. Ewing for Mr. Cushing; Dr. Earle for the Eastern Trust Co., and M. G. Teed for the bondholders.

The Possibilities of New Ontario

Provincial Government to Electrify Temiskaming Railway. Waterfalls and Pulpwood Lands Along the Line.

The Ontario Government has now begun to complete maps and plans as well as details of the estimated cost of the electrification of the Temiskaming and Northern Ontario Railway from North Bay, the starting point to Englehart, on the second division, 137 miles north. The estimates are based not only on the careful calculations of experts, but also on figures submitted, as though the work had been actually authorized. The whole matter is now before the Government for consideration, the Government Railway Commission having declared in favour of the project. The cost of the work will be \$1,000,000, this including the price of electric locomotives. The two reasons for the electrification of this route are, first, the large water powers along it with the consequent saving in fuel, and second the greatly decreased danger by fire to the immense white pine and spruce forests through which the line runs.

In this connection mention may be made of the trip made early in June by members of the Ontario Government, and a party of newspaper men to this far-lying northern country. In addition to the rich mineral wealth, the visitors gained a good idea of the vast water powers and the great quantity of fine pulp-wood along the line. Temagami Station on the railway is in the heart of the Temagami Timber Reserve. The chief asset of that reserve is its pine. There certainly is no pine forest on the continent to compare with it. Nearly everybody has been in a forest, but there are only some who have ever been in a pine forest of great trees. To those who have not been in such a grand primeval wilderness, it may be said that they cannot imagine the sublimity of it. To go into a great forest of pines in which no trace of even a fire is to be found is to expose oneself to very noble impressions. Besides the pine, for which

a syndicate of Americans is understood to have offered \$100,000,000, there is an enormous quantity of spruce on this vast reserve. Embosomed in that mighty forest is Lake Temagami. No conception of the beauty of this lake and its twelve or thirteen hundred islands can be formed by any but beholders. Most people seem unaware that it is a large bay of water. Its formation and its many deep indentations deceive the man who studies it from the map alone. This paradise of all lovers of fishing sport, this haunt of summer tourists, has an aggregate coast line of 2,200 miles. About its shores and on its picturesque islands crowd the towering trees of white pine, spruce, and other varieties. This is to be a perpetual timber reserve, a perpetual cover to the sources of the streams that flow southward and eastward into the Ottawa basin and into Lake Nipissing, whose waters drain into Georgian Bay.

The timber will be sold simply as thinning out is required, when the matured trees will be taken to make way for the generations of younger trees below them. Saw logs and pulp-wood will be sold at such times, not by the square mile but by the thousand feet. Now that the railway is built it may be expected that this lumbering in the interests of forestry will be begun shortly. When it is started, great supplies of timber will come out, and the movement is likely to be more or less continuous, for the thinning out of the perfected trees in so extensive and thriving a forest will not be a few seasons' work.

Beyond the Huronian tract, in what is known as the "clay belt," settlers are coming in. The land is believed to be very suitable for agricultural purposes. It remains to be seen whether the climate is, for the extreme cold of winter is interrupted by summers that begin late and end early. This may prove bad for crops. But if the influx of the settler

continues, there will be a great output of pulp wood along the clay-belt section of the line. All the trees growing there fall into the three economic classes—pulp-wood, railway timber (ties, telegraph posts, etc.), and firewood. There is no timber that could be regarded as first-class lumber material. Pulp-wood preponderates. The writer met a pulp-wood buyer, a man dealing with the settlers, who said that the yield in the clay belt was from fifteen to twenty cords an acre. This seems an exaggerated estimate, and it is probable that it has reference to "pockets" rather than to the whole clay belt section, on parts of which there certainly could be found no fifteen cords to the acre—indeed, no five cords. But it is unquestionably a great pulp-wood district. Throughout the whole fifty-two miles of line built north of New Liskeard were to be met piles of pulp-wood along the track. The Riordon have some 5,000 cords ready to ship thence to their Merritton mill. And

magnificent pulp-wood it is. No spruce could be found anywhere that now awaiting shipment on Temiskaming and Northern Ontario Railway north of New Liskeard.

Pulp-wood is now lower priced than it was, but it is still dear enough to make the railway freight seem less of a disadvantage to shipment by that mode than it was some years ago. Then pulp-wood was of low-grade classification, being so cheap that it would not bear high transportation charges. The new road has done something to make pulp-wood cheap for Ontario buyers. Were it not for this line, the pulp-wood required for Merritton mills would probably now be coming in barges up the St. Lawrence. In the New Ontario region penetrated by this road there are certain to be many manufacturing developments, as there is plenty of water power in the sparsely forested regions. It is said that the Imperial Lumber Company will build and operate a pulp mill there.



Recent Canadian Patents

Inventions of Interest to Pulp and Paper Manufacturers Patented in the Country This Year.

The following are among the list of patents recently issued by the Canadian patent office:—

No. 97,020. Pulp Screen.

The Baker & Shevlin Company, assignee of James H. Baker, George F. Shevlin, and Frederick H. Baker, all of Saratoga Springs, New York, U.S.A., Canadian holders of patent the John Macdougall, Caledonian Iron Works, Montreal, 16th January, 1906; 6 years. Filed 6th October, 1905. Receipt No. 129,001.

Claim.—1. In a centrifugal pulp screen, the combination with the beater wheels, of devices secured behind the blades of the beater wheels and within the cylindrical portion and near the upper ends of the blades to prevent the stock gathering behind the blades.

2. In a centrifugal pulp screen, the combination with the blades and cylindrical portions of the beater wheel, of devices placed behind the blades within the cylindrical part and near the upper part of the blades extending across and filling the spaces behind the blades and means for attaching the devices in place so as to prevent the lodging of stock behind the blades.

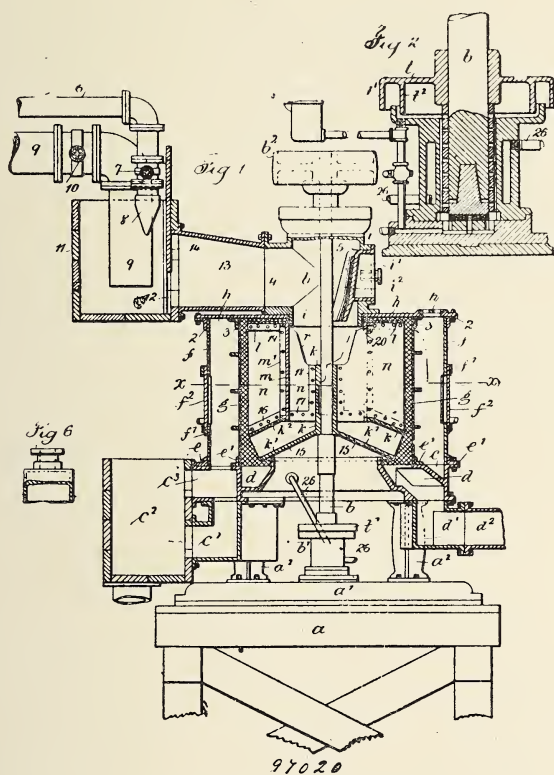
3. In a centrifugal pulp screen, the combination with the series of cylindrical blades and the cylindrical portion being the same and forming the beater wheels, of fillets comprising plate metal with bent ends extending across behind the blades and in the spaces formed by said blades and cylinder, the ends fitting in against the back

the blades and surface of the cylinder, so as to prevent the stock gathering behind the blades.

5. In a centrifugal pulp screen, the combination with the blades and cylindrical portion forming the beater wheels, and in which cylindrical portion are exit slots for the stocks at the edges of and parallel with the said blades, of means for lessening the size of said slots, as desired.

lation of the blades to the cylinder for varying the size of the slots.

6. In a centrifugal pulp screen the combination with the circular segmental screen plates and the annular concentric cast metal troughs, of the segmental casing of panels surrounding the screen plates and provided with an opening of appreciable area, a frame surrounding said opening and forming a slide way and a shutter plate within said frame and



No. 97,020. Pulp Screen.

Tamis à pulpe.

5. In a centrifugal pulp screen, the combination with the blades and cylindrical portion forming the beater wheels and in which cylindrical portion are exit slots for the stock at the edges of and parallel with said blades, of blades fitted transversely and screws for attaching the same to the surface of the cylinder providing for an adjustable re-

against the surface of said casing to close off the opening in the panel of the casing for providing access thereto by raising the shutter plate.

7. In a centrifugal pulp screen, the combination with the circular segmental screen plates and the annular concentric cast metal troughs, of the segmental casing of panels surrounding the screen

plates and provided with an opening of appreciable area, of a device having a slidable relation with said panels and adapted to cover the opening therein, and a support therefor.

8. In a centrifugal pulp screen, the combination with the segmental casing and concentric circular segmental screen plates within the same, of the annular concentric cast metal troughs, the one coming between the aforesaid parts at the base thereof and the other within the screen plates, a discharge trough connected with the inner of said concentric troughs and located below the same on one side of the machine, a discharge trough opening into the outer of said cast metal troughs and located beneath the same, and an exit opening formed in the latter trough parallel to the exit opening of the latter discharge trough as an exit opening for air from between the casing and the screen plates.

9. In a centrifugal pulp screen, the combination with the segmental casing of panels and the circular segmental screen plates connected therewith and within the same and the annular concentric cast metal troughs, the one between and the other within the said parts, of means located at the upper portion of the casing and screen plates and between the panels of the segmental casing and at one side of the outer cast metal trough as exits for the confined air between said casing and screen plates in the operation of the machine.

10. In a centrifugal pulp screen, the combination with the segmental casing *f* and circular screen plates *g*, of the annular concentric cast metal troughs *c*, *d*, to which the aforesaid parts are connected, a curved discharge trough *c*¹ below and opening into the trough *c* at one side of the machine, and having an exit opening therefrom and of the length of the said trough *c*¹ and a parallel opening *c*³ at the side of the trough *c* as an exit for the air from between the casing and the screen plates.

11. In a centrifugal pulp screen, the combination with the segmental casing *f* and circular screen plates *g*, of the an-

nular concentric cast metal troughs *c*, to which the aforesaid parts are connected, a curved discharge trough *c*¹ below and opening into the trough *c* at one side of the machine, and having an exit opening therefrom and of the length of the said trough *c*¹ and a parallel opening *c*² at the side of the trough *c* as an exit for the air from between the casing and the screen plates, and a tank *c*² fitted up against the discharge trough *c*¹ and the air exit opening *c*² of the trough *c* to receive the good stock in the operation of the machine.

12. In a centrifugal pulp screen, the combination with a vertical revolving shaft and a step bearing for the lower end of the shaft and means for oiling and cooling the shaft at its bearing, of a cover to the oiling and cooling device provided with a downwardly extending outer flange *t*¹ and a second downwardly extending inner flange *t*².

13. In a centrifugal pulp screen, the combination with a vertical revolving shaft and a step bearing for the lower end of the shaft and means for oiling and cooling the shaft at its bearing, of a device surrounding the shaft and extending over the oiling and cooling device, and having parts associated therewith and acting at the same time to prevent foreign particles getting into the oiling and cooling device or oil spatter by the revolving shaft from getting on.

14. In a centrifugal pulp screen, the combination with a vertical revolving shaft, and the beater wheel, of an inlet pipe for the stock to the beater wheel vat and pipe connecting the same with said inlet pipe, a pipe for introducing stock into the vat, a pipe for water to a nozzle for admitting the water into the vat to mix with the stock and reduce consistency, and a gate in the opening between said vat and pipe for regulating the extent of flow of the thinned stock to the machine.

15. In a centrifugal pulp screen, the combination with a vertical revolving shaft and the beater wheel, of an inlet pipe for the stock to the beater wheel vat and pipe connecting the same to s-

inlet pipe, a pipe for introducing the stock into the vat, a pipe for water and a nozzle for admitting the water into the vat to mix with the stock and reduce its consistency, and a gate in the opening between said vat and pipe for regulating the flow of the thinned stock to the machine, the said nozzle being narrow in the direction and of at least the diameter of the pipe in the opposite direction and located above the lower end of the gate and the discharge opening formed therebetween and the lower end of the inlet pipe for the stock below the normal position of the lower end of the gate and immersed, the gate controlling the depth of the discharge.

16. In a centrifugal pulp screen, the combination with the segmental casing *f* and circular screen plates *g* of the angular cast metal trough *c* coming below and between the vertical planes thereof, a curved discharge trough *c'* below the trough *c*, into which the trough *c* discharges, and air exit opening *c''* at the side of the trough *c* for the pent up air from between the casing and screen plates.

17. In a centrifugal pulp screen, the combination with the segmental casing and circular screen plates *g*, of the angular cast metal trough *c* coming below and between the vertical planes thereof, and an air exit opening *c''* at one side of the trough *c* and in the same horizontal plane for the pent up air from between the casing and screen plates.

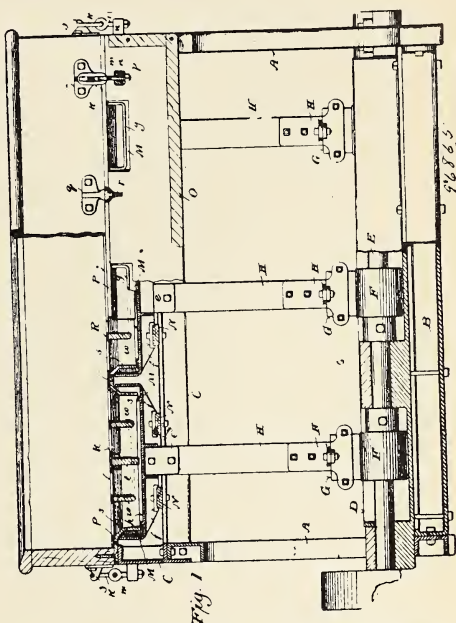
No. 96,865. Pulp Screening Machine.

Edward William Goodrick, Appleton, Wisconsin, U.S.A., 9th January, 1906; 6 years. Filed 7th October, 1905. Receipt No. 129,041.

Claim.—1. In a pulp screening machine, a vertically vibratory pan provided with one or more outlets, and a screen frame having an endless flange depending into the pan.

2. In a pulp screening machine, a vertically vibratory pan having an inner endless flange and provided with one or more outlets, and a screen frame having an endless flange depending into the pan adjacent to the bottom flange of the same.

3. In a pulp screening machine, a vertically vibratory pan provided with one or more spouts at a suitable elevation above its bottom, and a screen frame



No. 96,865. Pulp Screening Machines.
Tamis à pulpe.

having an endless flange depending into the pan below the spout or spouts of same.

4. In a pulp screening machine, a vertically vibratory pan having an inner endless flange on its bottom, and provided with one or more spouts at a suitable elevation above said bottom, and a screen frame having an endless flange depending into the flange below the spout or spouts of same adjacent to the bottom flange of said pan.

5. In a pulp screening machine, a vertically vibrating pan provided with one or more spouts at a suitable elevation above its bottom, each spout having inner side grooves for the engagement of a weir, and a screen frame having an endless flange depending into the pan below the spout or spouts of same.

6. In a pulp screening machine, a plurality of pans each provided with one or more spouts at a suitable elevation above its bottom, a screen frame having a plurality of endless flanges each of

which depends into a pan below the spout or spouts of same, and means in conjunction with the pans for imparting vibratory motion to the same in a vertical direction.

7. In a pulp screening machine, a plurality of pans each provided with one or more spouts at a suitable elevation above its bottom and having an inner endless flange on said bottom, a screen frame having a plurality of endless flanges each of which depends into a pan below the spout or spouts of same adjacent to the bottom flange thereof, and means in conjunction with the pans for imparting vibratory motion to the same in a vertical direction.

8. In a pulp screening machine, a plurality of pans each provided with one or more spouts at a suitable elevation above its bottom, each spout having inner side grooves for the engagement of a weir, a screen frame having a plurality of endless flanges each of which depends into a pan below the spout or spouts of same, and means in conjunction with the pans for imparting vibratory motion to the same in a vertical direction.

No. 97,012. Pulp Filter.

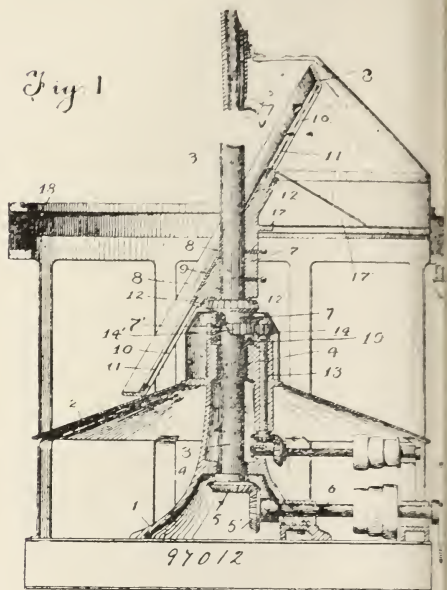
Lamartine Cavaignac Trent, Van Trent, California, U.S.A., 16th January, 1906; 6 years. Filed 9th October, 1905. Receipt No. 129,075.

Claim.—1. A filter for the described purpose, the same comprising a screen arranged at an incline to the horizontal, means for revolving the screen in a horizontal plane at a high speed, mechanism for simultaneously rotating the said screen in a plane at right angles to its own axis, and means for feeding the material to be treated onto the upper portion of the screen's surface during its rotary movement.

2. A filter for the described purpose, the same comprising a screen arranged at an angle to the horizontal, and means for revolving the same in a horizontal plane and simultaneously rotating the same in a plane at right angles to its own axis.

3. A filter for the described purpose, the same comprising a screen arranged

at an angle to the horizontal, means for rotating the same in a horizontal plane and simultaneously imparting thereto



No. 97,012. Pulp Filter.
Filtre pour la pulpe.

tation in a plane at right angles to its own axis, means for delivering the material to be treated to the upper surface of the screen during its rotation, a device arranged at the back of the screen to receive the separated liquid, and a receiving table located below the screen and onto which the discharged material is delivered.

No. 97,270. Paper Serving Device.

Richard Thomas Jones, Baltimore, Maryland, U.S.A., and Edgar Oles Bock and John A. Brown, assignee of three-fourths of the title, both of Hamilton, Ontario, Canada, 30th January, 1906; 6 years. Filed 14th December, 1905. Receipt No. 131,015.

Claim.—1. In a paper serving device the combination of a paper roll support, a cutter element, and a paper lifting guide carried by and shiftable to either end of the cutter.

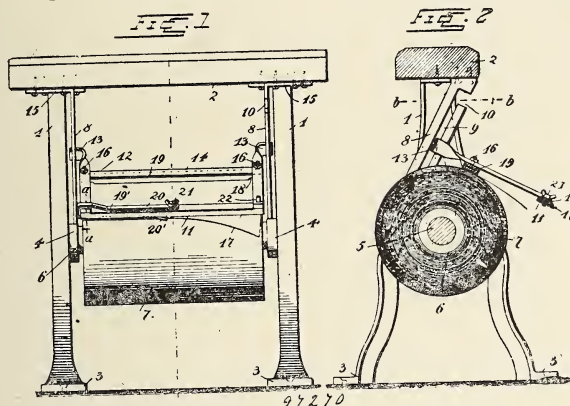
2. In a paper serving device, the combination of a paper roll support, a cutter element, and a paper lifting guide pivoted

connected to and shiftable to either end of the cutter.

3. In a paper serving device, the combination of a paper roll support, a cutter element, and a paper lifting guide having an upper arm to bear on the upper side of the cutter and pivotally connected

to support the free end of the paper roll, said paper lifting guide made of resilient material, and said cutter having stop lugs at its ends to secure the paper lifting guide when the same is lifted to either end of the cutter.

5. In a paper serving device, the com-



No. 97,270. Paper Serving Device.

Alimentateur pour papier.

heto, and having a lower arm to engage and support the free end of the paper roll.

In a paper serving device, the combination of a paper roll support, a cutter element, and a paper lifting guide having an upper arm bearing on and pivotally connected to the cutter, and a lower arm

bination of a paper roll support, a cutter element, a movable supporting frame for the cutter element having a bar provided with gains at its end on its underside, that portion of the bar between the said gains bearing on the paper roll, and the gains of the bar clearing the ends of the paper roll, for the purpose set forth.



FUTURE SUPPLY OF WOOD PULP AND PAPER STOCK FOR UNITED STATES.

Discussing the question of the future supply of wood pulp and paper stock for the American paper manufacturers, "The United States Paper Maker" says:—

An interesting state of affairs confronts American paper makers who have been obtaining their wood pulp from Canada or their rags from France. Canada is talking about imposing an extra duty on pulp-wood, and France threatens to do the same thing with rags. The purposes of the proposed actions in these two countries are the same in both cases. Paper making is an important industry

in France, and that country is now exporting so much of its supply of rags suitable for paper-making that the French paper-making industry is seriously menaced, and the French chamber of deputies has already considered a proposition designed to stop the exportation of the article which is so badly needed at home.

"Ledger paper, writing paper, blotting paper and cigarette paper are largely made in France, and the countries which are trying to sell goods in the markets where France now sells are the same ones that are trying to buy their supplies of rags in France. Since 1881 exports of rags from France have been subject to no duty, and in the last five years the trade has become so large that French paper men have begun to fear that their

business will be ruined unless they stop the shipping of rags to other countries. In 1901 France exported 29,000 tons of rags suitable for paper making. The quantity has grown rapidly, and last year it amounted to 57,000 tons, causing a rise in price of the raw material of 25 per cent.

"It is said that the same condition of affairs exists in neighboring countries which produce rags, and these countries have already introduced an export duty. In Switzerland the duty is one franc per 100 kilos; in Spain it is four francs, and in Italy 8.89. In Austria and Hungary, France's strongest competitors in cigarette papers, the duty is 12 francs per 100 kilos. As it takes two kilos of rags to make a kilo of cigarette paper, the Austrians thus have the advantage of 24 francs per 100 kilos of paper, which enables them to replace the French papers in the largest Oriental markets.

"In Germany the financial commission of the Reichstag has approved a proposal to levy a duty of six francs per 100 kilos on rags, but the thing that incenses the Frenchmen most is that the United States imposes a duty of from 40 to 60 per cent. on all manufactured goods, but admits the rags free of duty. The proposed French law provides for an export duty of 10 francs per 100 kilos upon all rags, rope, jute and any waste material used in paper making.

"What this would mean to the paper makers of the United States may be judged from the fact that the United States brought from France in the ten months ending April, 1906, rags valued at \$463,916. In the corresponding ten months of the previous year the business amounted to \$375,217, and the year before that it was \$232,347, an increase of nearly 100 per cent. in the three years.

"The wood pulp situation in Canada is certainly such as to give many of our paper makers much concern. The cry has been raised in Canada that it is time for the Dominion to arouse itself to a realization of its present policy in selling a product abroad which can be used for the building up of an immense industry

at home. Keenly alive to the fact that the forests of the United States are rapidly becoming depleted, the Canadians believe that they have the key to the lumber and wood pulp situation in their own hands, and they are now beginning to tell one another that it is senseless extravagance to hand this great treasure to the people of other countries who may thus perpetuate and strengthen their own business, and by keen competition make conditions in Canada worse rather than better.

"It is a fact that the United States whose consumption of pulp and paper per head of population is greater than that of any other country in the world is rapidly becoming more and more dependent upon Canada for her supply of pulp-wood and indirectly for her paper. Canadians think that they see an easy remedy for the present condition. They say that Dominion legislation restricting or prohibiting the export of pulp wood would raise up an industry in Canada which would count for much in their industrial prosperity. They believe that the result would be the establishment in Canada of branches of manufacturing plants which have grown to great magnitude in the United States at Canada's expense.

"The argument is that if the owners of the pulp mills in the United States could not get their pulp-wood in the States they would promptly move their mills to a place where they could get unlimited supplies. Canada has all the natural advantages which would make her an immense paper-making country. She has an almost unlimited supply of pulp-wood as well as the immense water power which is essential for economic production of pulp and paper.

"The Quebec Pulp Wood Association held a meeting in Sherbrooke recently and discussed the subject in all its phases. It is certain that as a result of this association's activity the output of Canadian pulp-wood will be regulated in some way and that all the policies will be determined upon, whatever they may be, will be in favor of the Canadians.

Canadian shipments of pulp-wood into the United States show a constant tendency to grow. In the ten months ending April, 1904, they amounted to 8996 tons, valued at \$1,614,756. In the corresponding period ending April, 1905, they had amounted to 111,884 tons, valued at \$2,262,213. There was a slight falling off in the ten months ending April last, but the total was still quite impressive, being 98,079 tons, valued at \$1,06,753."



VALUING ONTARIO TIMBER BERTHS.

The Ontario Government has taken the first step towards securing a systematic valuation of timber berths in several sections of the northern country, which may be offered for sale next year, or at a later period. For this purpose the sum of \$6,000 was voted in the supplementary estimates of the recent session of the legislature under the head of "Exploration and Estimation of Timber Berths." Several practical experienced men were sent out about the middle of June to examine berths on the Sturgeon River, and others will be sent this week to several other points. Each party will conduct its explorations and estimations in a most thorough and exhaustive manner, so that when the Government decides to sell the timber on these respective berths they will have as near as human judgment can give them an excellent idea of the prices they should obtain, and they will insist on getting these prices.



PULP WOOD CONCESSIONS IN NOVA SCOTIA.

According to "The Post," of Sydney, Nova Scotia, the Government of that Province has been as indulgent with timber concessionaires as was the Ross Government in Ontario, five of whose pulp-wood concessions have been cancelled by the Whitney Government since

the latter came into power. "The Post's" account is as follows:—

"On February 1st, 1899, the Government of Nova Scotia entered into a contract, confirmed by Parliament, granting to the North River Lumber Company 359,000 acres of public lands in Victoria County, and 151,000 acres in Inverness County; one-half million acres a principality, and yet the consideration was not unfair. The company was to pay an annual rental for the term of lease, thirty years, within two years, namely, before the 1st of July, 1901. It was to spend in each county \$10,000 within four years; it was to erect one or more pulp mills of a daily capacity of fifty-two tons, an industry of importance, giving employment to many people, and the interests of the public were safeguarded by the provision in the contract that no unmanufactured wood was to be exported from the Province.

"This was the contract made by Parliament and no power save Parliament had authority to alter it.

"The establishment of the industry in these counties justified, it may be admitted, the concession to the company of this vast extent of the people's land, cutting off the farmer and fisherman from his adjacent supply of firewood and lumber, a concession so important that the company has since then represented it as containing an inexhaustible supply of pulp-wood, and conducted negotiations looking to its sale for an enormous sum.

"To recapitulate: The company was granted in Victoria County, 359,000 acres; Inverness County, 151,000 acres. It was to pay a rental.

"The company was to spend in Victoria County, \$10,000.

"The company was to spend in Inverness County, \$10,000.

"All this was to have been done before July 1st, 1901.

"It was prohibited from exporting unmanufactured timber from the Province.

"The Government of Mr. George Murray has undertaken to sweep away the conditions of the contract as ratified

by Parliament by various orders-in-council absolutely illegal.

"1. February, 1900.—Time extended for expending money to July, 1903, and for building of mills to July 1st, 1904.

"2. July 1st, 1901.—Time for expending money extended to July 1st, 1904, and for the building mills to July 1st, 1906, and considering wood shaved should be considered as manufactured.

"3. February, 1904.—The company relieved from the building of pulp mills.

"4. Term extended from 30 to 99 years. None of these concessions was ratified by Parliament, but stand, the company permitted to denude the valleys of the North and export the wood.

"To build no mills, but still to hold the heritage of the people."



QUATSINO POWER AND PULP CO.

Mention was made in the last issue of the "Pulp and Paper Magazine" regarding the Quatsino Power and Pulp Co., which was organized to develop pulp-wood lands and construct a pulp mill at Quatsino Sound, Vancouver Island. The promoter of this company is Dr. Ernest Cruther, Washington Hotel, Seattle, Washington, U.S.A.

In a prospectus of the company it is stated that abundant waterfalls will furnish the power, besides waste from saws for steam purposes. Coal beds and many of the chemicals used in paper-making are said to be at hand near the mill. Splendid water facilities, cheap transportation, and a limitless market for paper are among the other advantages claimed by the company.

The new company owns a concession of 80,000 acres of timber lands from the Canadian Government. The life of the concession is said to be twenty years for lumber and forty years for pulp and paper. The amount of timber estimated by the company on its concession is given as 2,000,000,000 feet of fir, spruce, hemlock, red and yellow cedar. The tax the company pays the Dominion is two

cents an acre on 67,000 acres and 22 cents an acre on 13,000 acres. In royalties will pay 15 cents per cord for pulp-wood and 50 cents stumpage for lumber.



REPORTED AMALGAMATION OF GRAND FALLS, N.B., COMPANIES.

A despatch from St. Johns, New Brunswick, dated June 29th, says:—

It is reported that the big rival company formed for the development of the water power of Grand Falls, and the establishment of large industries there have arranged to amalgamate their interests, and that this project was advanced towards completion at a meeting held in St. John yesterday afternoon.

Of the two companies one was incorporated by act of the Provincial Legislature and among those principally interested are Barton F. Kingman, H. Mc Loughlin, of New York, and F. C. Sale and C. H. Newell, of Providence (R.I.). The capital stock is \$5,000,000 with power to increase to \$10,000,000, and it is this company which, as before reported, intends to establish pulp and paper mill at Grand Falls and also a plant for the reduction of ferro-manganese from the bog ores which are so plentiful in the Province; also to produce enormous electrical power, which it is planned to sell all the way down the St. John River to this city; also, perhaps to operate by electricity the International Railway now being built between Campbellton and St. Leonards. This company was incorporated under the name of the Grand Falls Power Company, Limited. There was also incorporated, under the Dominion Legislature, a company of the same name, among those interested in it being Sir Wm. Van Horn, head of the C.P.R. and Senator Redfield Proctor, of Vermont.

It will be remembered that there was a dispute between the companies as to the right to the name which they both had taken, and it was decided at Ottawa

avor of the first-named company—
incorporated by Provincial Legis-
lation. Some time after this decision
given, it is understood negotiations
going towards the sinking of differ-
ent bonds and a union of interests were begun
and that a meeting held yesterday after-
noon had as its object the conformation
of this amalgamation, and that hereto-
fore all the interests will be working in
harmony and that early and vigorous
execution of the work at Grand Falls
will be under way.

At the recent meeting of the Grand
Falls Power Company, Limited, Mr.
J. H. Gorman was elected president; Mr.
J. H. Gorman, vice-president; Mr. Newell, secre-
tary and treasurer, and Mr. McLoughlin,
general manager.



FIRE AT CHICOUTIMI.

The building of the Chicoutimi Pulp
Company containing its barking and log
skidding machines was damaged by fire
to the extent of between \$15,000 and
\$20,000 on June 25th. The loss is mostly
covered by insurance.



BRITISH EXPORTS OF PAPER.

The British exports of paper during
January-May were of the value of £180,108, an
increase of £5,435 compared with the
corresponding month of last year. Writ-
ings, printings, and envelopes were ship-
ped to the extent of 87,485 cwts. of the
value of £117,855 (as against 85,969
cwts., of the value of £119,810 received
in May last year); hangings, 7,839 cwts.,
valued at £1456 (as against 7,109 cwts. and £16,-
000; bags, 2,797 cwts., £3,232 (as against
2,567 cwts. and £2,745); and other de-
scriptions, 25,321 cwts., £40,565 (as
against 23,596 cwts. and £35,511).

The exports of British paper during
January-May amount to £832,499, an in-
crease of £28,830 compared with the
corresponding five months of last year.
The shipments comprised the following:

	Cwts.	£
Writings, printing and envelopes	394,097	534,742
Hangings	40,931	106,370
Bags	13,963	15,626
Other descriptions	114,848	175,761

These figures compare with the follow-
ing for January-May of last year: Writ-
ings, printings, and envelopes, 381,513
cwts., £516,401; hangings, 40,224 cwts.,
£103,972; bags, 14,780 cwts., £14,994;
and other descriptions, 111,774 cwts.,
£168,302.

The markets for writings, printings,
and envelopes are as under, the figures
showing the values of shipments during
the first five months of this and the pre-
ceding year:—

	Jan.-May, 1905.	Jan.-May, 1906.
France	£41,622	£47,305
United States	13,346	11,796
Other foreign countries.	117,371	137,294
British South Africa ...	70,847	51,384
British India	73,552	82,268
Straits Settlements	6,720	9,045
Ceylon	7,864	10,222
Australia	97,858	96,830
New Zealand	40,925	42,475
Canada	27,764	28,562
Other British possessions	18,532	17,561

British writings and printings are in
improved demand for foreign countries,
the exports during January-May last be-
ing of the value of £196,395 as compar-
ed with £172,339 for the corresponding
period of last year.

The shipments of other descriptions of
paper (not including hangings and bags)
to the countries mentioned were as un-
der:—

	Jan.-May, 1905.	Jan.-May, 1906.
France	£12,622	£9,729
United States	15,001	17,487
Other foreign countries.	52,042	52,513
British South Africa ...	20,188	23,153
British East Indies ...	24,329	22,955
Australia	18,740	21,587
New Zealand	6,720	7,173
Canada	9,161	10,989
Other British possessions	9,499	10,175

The re-exports of paper (foreign manufacturers) from United Kingdom ports during May were of the value of £8,654, and during January-May, of the value of £60,306 increases respectively of £1,057 and £24,203 compared with the corresponding periods of last year.



ENGINES REMOVED FROM MISPEC, N.B. MILL.

Stetson, Cutler & Co., of Boston, Mass., who now own and operate the pulp mill at Mispec, St. John Co., New Brunswick, have notified the city of St. John that they desire two engines removed to make way for improvements. It is probable that the engines will be brought to the city and disposed of. The company some time ago removed the engines to the wharf, and are said to have been under the impression that a notification to the effect that the engines were no longer required ended their liability to the city.

It is understood that the mayor of St. John made an offer to the engineer in charge that if the company would land the engines in the city they would be relieved of any further responsibility. The proposal, it is said, will likely be accepted. The engines are of 75 and 150 h.p., and are reported to be of little further use. It is likely they will be disposed of as junk.



MERRITTON PAPER MILLS CO.

The by-law submitted to the ratepayers of Merritton, Ont., during the fourth week in June, granting a fixed assessment to Brown Bros. & Beach, of the Merritton Paper Mills Co., of \$60,000 per year on their mill property was carried by a large majority, there being a heavy vote polled. Only three votes were cast against the measure. The building secured by this company is a substantial structure, and was formerly occupied by

the Canadian Colored Cotton Mills Company. The company will rush the installation of machinery at once, and, already announced, they will manufacture ledger, loft-dried, and other high class papers, for which there is an increasing demand in the country.



PAPER MAKERS DIRECTORY ALL NATIONS.

The 1906 edition of the Paper Makers Directory of All Nations, issued by Dean & Son, Limited, 160A, Fleet St. E.C. London, England, has come to hand, and is a valuable addition to literature of the trade, containing, it does, the latest available statistics of paper productions in each country. There is a complete list of paper, pulp, and board mills of the world, and the firms are classified according to their principal productions. Arranged alphabetically throughout, and in every section, the book is particularly easy of reference and it is indispensable to all firm individuals interested in the mills, those connected with the paper trade, the world, either as mill representatives, importers, or exporters, stationers, manufacturers, machinery manufacturers etc. A publisher's advertisement regarding the work will be found in the advertising section of this issue.



CANADIAN PACIFIC SULPHITE PULP CO.

The British directors of the Canadian Pacific Sulphite Pulp Company, the organization of which was commenced in our last issue, are A. Mellis, J.P., A. deen; M. A. Sands, 42 Lowndes St. London, S.W.; and E. E. Sawyer, 2 M.Inst., C.E., 20 Devonshire Terrace, London, W. The English offices are at 826 Salisbury House, London-wall, London, E.C., and the Canadian offices under the management of J. M. MacKin

at 413 Granville Street, Vancouver, B.C. According to the prospectus issued the company has been formed with a capital of £107,000, in 75,000 "A" shares, and 30,000 "B" shares of £1 each, and 40,000 "C" shares of 1s. each, to be purchased from the Canadian Finance Corporation, Limited, of 826 Salisbury Street, London-wall, London, E.C., the object of the issued capital stock of the Portland Power and Pulp Co., Limited, Vancouver, B.C. The Oriental Co. is the registered holder of leases of about 84,000 acres of pulp timber lands on Prince of Wales Island and the adjacent mainland in British Columbia, together with water-power and about 500 acres of re-forest land. The Canadian Pacific Pulp Co., Limited, propose in the first instance, to erect a complete pulp mill, capable of producing a minimum of 5,000 tons per annum of white pulp, and a sawmill for the purpose of dealing with the larger logs. The mill should be in operation in about three months, and the latter in six months. The erection of a paper mill is for subsequent consideration. With a minimum production of 5,000 tons per annum, the net profit estimated would be over £12,000, and yields nearly 25 per cent. on a minimum subscription of £50,000.



MARRIAGE OF WELL-KNOWN PAPER MACHINERY MANUFACTURER.

The firm of Bentley & Jackson, paper mill, engineers, and machinery manufacturers of Bury, England, is well known in Canada, and we are pleased to report the marriage of George Bentley, a member of the firm.

To celebrate his marriage, Mr. Bentley defrayed the cost of an outing to Liverpool for the employees, which took place on May 5th, and also allowed each employee availing himself of the trip a sum of 6s., and granted his wages for the day. There were about 300 excursionists, in-

cluding Mr. and Mrs. G. Bentley, the directors, and heads of departments, several of whom were accompanied by their wives. They journeyed by special train, leaving Knowsley Street railway station about 6.50 a.m., and had a good run to Liverpool. On arrival they were at liberty to follow their own inclinations, but certain facilities had been obtained, and arrangements made for visiting a number of places, Mr. Bentley having interested himself largely in making the arrangements. The trip was organized by the committee of the Benovolent Fund, composed of representatives of various departments, W. E. Standing acting as secretary. The Allan Line, White Star Line, and Dominion Line gave permission for the excursionists to visit some of their vessels; the Cunard Steamship Company sent tickets permitting a number of persons to be on the landing stage to see the "Umbria" set sail; and permission to visit the "Caronia," which was lying in the Huskisson Dock, was also obtained. Permission to enter the New Brighton Tower Grounds, to visit Reynold's exhibition, and to travel on the over-head railway at reduced rates was obtained; and arrangements for visiting Port Sunlight and sailing to Llandudno, Bangor, or Beaumaris, were also made. Rain began to fall about 9.30 a.m., and continued practically all day, thus detracting considerably from the enjoyment of the excursionists. Many members of the company availed themselves of the special facilities provided, a number sailed to Llandudno, and several went to Chester. The weather at Llandudno and at Chester was fine, and the outing proved very pleasant. A party of about 150 went to Port Sunlight, and had the privilege of going through the soap works of Lever Brothers, and seeing the process of soap manufacture. T. Whitworth conducted this party, and on his motion a vote of thanks was accorded Lever Brothers for their kindness in allowing the party to go through their works. The arrangements for visiting the "Caronia" were made by W. Broughton, of Clough Street, who, as the visitors

were from an engineering works, obtained special permission for the party to visit the engine room and shaft tunnels. A meeting of employees was held at Bentley & Jackson's works at noon on the following Monday, when a vote of thanks was heartily accorded Mr. and Mrs. Bentley for their generosity, on the motion of Joseph Edwards; and a motion was also adopted expressing appreciation of the services of Mr. Broughton in connection with the trip.



CANADIAN FORESTRY ASSOCIATION MEETING.

On the invitation of the British Columbia Lumber and Shingle Manufacturers' Association, a meeting of the Canadian Forestry Association will be held at Vancouver, B.C., on the 25th and 26th of September next. This invitation was submitted to the Canadian Forestry Association at its annual meeting held in March last, and it was then decided that the invitation should be accepted. The British Columbia Lumbermen's Association are making every preparation to welcome the delegates to the meeting and to make their visit as pleasant and interesting as possible. This is the first meeting of the Forestry Association to be held in British Columbia, and it is particularly desirable that a large number should attend from the Eastern Provinces to show their interest in forestry and their appreciation of the kindness of the British Columbia Lumbermen's Association.

A splendid opportunity will be given to see the forests of British Columbia, and the scenery, both of coast and mountain, which is unrivalled in the world. As the exhibition at New Westminster will be held in the following week there will be an opportunity for seeing a collection of the best products of the Province. This exhibition is specially noted for the exhibits of fruits and live stock in addition to the products of the mine and the forest.

In connection with the meeting I tenant-Governor James Dunsmuir has issued the following circular:—

"As time passes it is becoming more evident that the eastern portion of the Dominion of Canada will have to turn this Province for its supply of lumber.

"The forest growth is now recognized as one of the most valuable crops produced by the soil. Its preservation, planting and proper use is of prime importance to the nation and individuals and should appeal particularly to the people of British Columbia.

"At the Forestry Convention held in Ottawa in January last, it was felt that the forestry conditions as found in British Columbia were not very well understood, and it was decided to hold the next convention in this Province.

"I have, therefore, much pleasure in acceding to the request of the Canadian Forestry Association and the Lumber Associations of British Columbia, to hold a public convention to meet in the city of Vancouver, B.C., on the 25th and 26th of September, 1906, under the auspices of the above-named Association."



REPAIRS AT "SOO" MILL.

One of the largest pieces of work on the side of new construction that has been undertaken by the Lake Superior Corporation at Sault Ste. Marie, Ont., is the placing of a new roof on the great wood-pulp mill. The action of the elements outside and the steam from the machines inside during the ten years since the construction of the mill rendered the original roof, which was of timber, not only unserviceable, but unsafe. The work of replacing it with steel was commenced a few days ago, and the work will be done at an expense of upwards of \$20,000. In addition to the steel roof, walls on all sides are being raised four feet higher than they now stand. New windows to the number of twenty will be placed in the new elevation, making the mill a much better lighted place. The

steam in the mill has always been one of the difficulties in the way of work. It made conditions uncomfortable for the employees and affected the material and in construction. Provision is now

being made for keeping the place free from steam by the installation of a large electric fan. With the added light and the absence of steam the interior of the pulp mill will appear altogether new.



Annual Sale of Quebec Timber Limits

378 Square Miles Aggregate \$283,665. Three of the Sixteen Water Powers Sold in the Face of a Protest Issued by Dominion Government.

The annual sale of Provincial Crown timber limits for Quebec Province took place at the Parliament Buildings in the historic city of Quebec, on Thursday, the 21st. Hon. Mr. Turgeon presided, and there was a large attendance of would-be purchasers besides the following ministers, Hon. J. C. McCorkell, Hon. J. C. Kane, Hon. Mr. Allard. Among others noticed were Hon. N. Gagné, W. Power, M.P., and Messrs. Prault, Gendron, Belouin, and Girard, M.P.

Bidding was at first comparatively slow. Numerous lots were put up and withdrawn. Later on, however, some of these lots were called for and again put up at the upset price, selling at a good advance thereon after lively competition.

At the morning sale, M. Boyle, of Ottawa, bought six lots on the Upper Ottawa agency, 50 miles, at \$220 per square mile; 35 miles at \$265; 50 miles at \$245; 5 miles at \$235; 70 miles at \$225; 50 miles at \$230; these figures being a considerable advance on the Government's upset prices.

A small eighteen-mile lot in the township of Dechene, Lake St. John, West, was next put up at \$400 per square mile, and finally adjudged to Mr. Paradis at \$50 per mile. Another lot of four and a half miles in the Township of Kennebec, put up at \$300, was knocked down to the same purchaser at \$410 per square mile.

A two-and-a-half-mile lot in the Township of Begin, in the Grand Village, put up at \$200, was adjudged, after spirited

competition, to Maurice Quinn, at the remarkably high price of \$500 per square mile. The same buyer also acquired a small lot of one and a half miles in the Township of Restigouche at \$400 per square mile, and still another of five miles in the Township of Macpes, Rimouski West, at \$1,000 per square mile, Mr. Quinn's final bid creating quite a sensation. Three hundred and twenty-five dollars per square mile was given by Baron Lepine for three and a half miles in the Township of Carleton, Bonaventure West, and Lefebvre & Mann paid \$320 per square mile for forty-eight miles on the River St. Anne, Gaspé West.

At the afternoon sale John Rowley purchased a number of lots at Sault au Couchon, comprising 850 square miles, at \$155 per square mile. F. Bignell, in trust, purchased sixty miles at Rousseau and May Island for \$265 per mile. Baron Lepine bought three and a half miles at Bonaventure West for \$325 per mile. Lefebvre & Mann secured forty-three and a half miles at Gaspé West for \$325 per mile, and Louis Cabot, of Boston, Mass., bought thirty-nine miles on the Grand River, Gaspé East, for \$300 per mile.

At the close of the sale of timber limits the sixteen water-powers by the Provincial Government were then announced. On the day previous to the sale Hon. Mr. Turgeon, Minister of Lands and Forests, received a notice from the Dominion Government ordering the postponement of the sale of water powers. The Federal Government

claimed that the Province had not the right to dispose of any water-powers connected with navigable waters. In addition to the notice, L. A. Cannon, a Quebec advocate, was present at the sale and acting under instructions from Hon. Mr. Hyman, Minister of Public Works, notified all intending purchasers of the notice served on the Government forbidding the sale.

Hon. Mr. Turgeon said that as far as the sale was concerned, the action of the Federal Government would have no effect whatever, and that the sale would go on as arranged. The Provincial Minister also remarked that he did not accept the protest seriously, because the question had already been settled by the courts and by the Privy Council, and the Province was perfectly within its rights in disposing of the water-powers. He presumed, however, that the Dominion Government, in response to the question raised in the House of Commons, simply wished the sale postponed until the minister, Hon. Mr. Hyman, had looked up the legal phases of the question, and made himself thoroughly acquainted with the matter, when he will find that the Province of Quebec is within its rights to sell the water powers.

The sale of the water powers was then proceeded with, and of the sixteen offered, three were sold. The power at Manicouagan Falls, was awarded to A. E. Delorimier, K.C., Montreal, for an annual rental of \$200; Lot No. 9, Manonau Falls, to Senator Choquette, at a yearly rental of \$505, and Lot No. 15, River Sault au Cochon Falls, to John Rowley for \$505 rental a year.



THE MOREAU PULP-WOOD BARKER.

In the advertising columns of this issue there will be found an announcement of the Moreau Barking Machine Co., Limited, for which C. Manseau, Mitchell Station, Que., is the selling agent for Canada and the United States. The Moreau barker is now in use in quite a number of the pulp mills and

crossing plants throughout the Province of Quebec, and has proved the most satisfactory machine in the market for the purpose. This barker has many strong points in its favor. It will peel wood of any dimension from 3 to 18 inches with only 15 to 18 per cent. loss according to the quality and size of the wood. Its capacity is from 25 to 30 cords of wood per day, with only two men operating it, but the same amount of work can be done by one man by means of a special feed chain. The barker runs lightly, requiring only a six h.p. motor with which three cords per hour can be peeled. It will ross wood to the same advantage in any kind of weather, winter or summer. The manufacturers have spared no pains in perfecting the construction of the machine. It is made simple and strong, of the best material that can be purchased, and consequently lasts as long as it is kept in good order. The knives are protected by a special device, so that there is absolutely no danger in running it, and it runs as well in dry, green or frozen wood. This is a machine that will commend itself to all parties requiring the services of a barker. Further particulars can be had by addressing C. Manseau, Mitchell Station, Quebec, who can furnish excellent references from many companies in his province who are using the machine continuously. Mr. Manseau is open to give agencies to suitable firms in other parts of the Dominion and the United States.



CUTTING OF IMMATURE TREES

For some time reports have been reaching the Provincial Government at Quebec, that cutting of immature trees was being practiced by at least one large lumber company, and as a result J. Morney, the expert provincial culler at Sherbrooke, has been commissioned to make an inspection and report thereon. It is said that as many as 80,000 trees have been cut by one firm. Should this be true and the charge proved, the company would be liable to a fine of \$240,000, at the rate of \$3 a tree.

Reaching Out For Canadian Business

During the past few months quite a large number of new machinery and mill and paper mill supply companies have been closely watching the growth of the pulp and paper industries in Canada. As a certain means of making themselves known to the Canadian trade they have wisely inserted their announcements in the advertising columns of the "Pulp and Paper Magazine," recognizing this magazine as the only one which not only appeals to Canadian mill men but to all interested in the business. Here are some of our most recent announcements:—

The Norwood Engineering Company, Lawrence, Mass., paper finishing machinery and filter plants; the China Clay Co., Manchester, England, exporters of China clay; Fairbanks & Aldy, 150 Nassau Street, New York, industrial engineers and pulp and paper mill experts; J. H. Horne & Sons, Lawrence, Mass., Fourdrinier cylinders and wet machines, beaters and paper makers; Dillon Machine Co., Lawrence, Mass., beating and washing engines, reeling engines, stuff pumps, calendar rollers, cutters, knives, etc.; Miramichi Pulp & Paper Company, Chatham, N.B., sulphite pulp; Ritchie & Ramsay, Toronto, coated paper manufacturers; B. S. Rogers & Sons, Worcester, Mass., calendar grinders; C. D'Oyley Mears & Co., London, Eng., pulp and paper mill engines; Riordon Paper Mills, Merriton, N.S., paper manufacturers; Julius R. Fisher, Nordhausen Am Harz, Germany, coating machinery, wall paper machinery, and all classes of machinery for book and calendered papers; B. F. Evening Wire Co., Hamilton, Ont., wire mesh screens; J. R. Walker & Co., Montreal, paper stock; Dominion Belting Co., Hamilton, stitched cotton duck belting; George E. Hanson, Hull, P.Q. high class felts; sulphite and ground wood pulp mills; Hoke Steam Boiler Works, (Inc.), Hoke, Mass., steam boilers, rotary and Scotch boilers and digesters; Jean

Freese, 132 Nassau Street, New York, pulp stones; Moore & White Co., Philadelphia, paper making machinery, and speed changes for paper machines; Moreau Barking Machine Co., Mitchell, P.Q., pulp-wood barkers; Perron, Gagnon & Co., Chicoutimi, P.Q., pulp-wood sawing machines; Rice, Barton & Fales, Worcester, Mass., all classes of paper mill machinery and "Moore Patent Horizontal Revolving Screens for ground, soda, and sulphite pulp; Valley Iron Works, Appleton, Wisconsin, automatic barker knife grinders, beating engines, bleaching engines, wet machines, etc.

Following are special announcements regarding some of these companies.



VALLEY IRON WORKS CO.

The Valley Iron Works Co., of Appleton, Wis., U.S.A., has been attracting considerable attention among paper and pulp manufacturers with their paper mill specialties, one of which, a Barker Knife Grinder is shown on page 39 of this issue. This machine is remarkably efficient and can **grind 150 knives in ten hours** perfectly true, and with absolutely no loss of temper. This machine is now in operation in many of the mills in the Fox River region, and is a proven success.

The firm makes a specialty of beating engines, and recently secured what is said to be the largest single order for beating engines ever placed. The order was secured in open competition against both eastern and western builders, and calls for 32-iron tub engines of No. 1,000 lbs. capacity. These beaters are now being erected at the company's plant, and have numerous features which are found only in the Valley Iron Works Co.'s engines. These beaters are built for heavy work, and are to be installed in the new mill of the Barrett Manufacturing Co., at Peoria, Ill.

The firm has also placed in the market a patented splitter built to be run with compressed air. This machine will split logs up to 36" in diameter and larger, and the logs may be rolled into position instead of being lifted. This makes possible considerable saving in labor.

Vacuum pumps, cut off saws, screens, a new and improved sulphur furnace, wet machines, valves, agitators, and barkers, are also manufactured by this company.



RICE, BARTON & FALES CO.

Among the large pulp and paper mill machinery firms reaching out for further business in Canada, where they already have a good connection, is the Rice, Barton & Fales Machine & Iron Company of Worcester, Mass., U.S.A. Beginning with this issue their announcement will be found regularly upon the inside of the front cover of the "Pulp and Paper Magazine." This firm is one of the most enterprising in the United States, and has installed modern fast running and heavy Fourdrinier and cylinder machines in many of the best mills. They are now finishing a new high-class paper machine to be delivered to the Gilbert Paper Company, Menasha, Wisconsin.



NEW PULP-WOOD SAWING MACHINE.

Perron, Gagnon & Co., Chicoutimi, Que., announce in this issue the success they have met with in the manufacture and sale of their automatic pulp-wood sawing machine. This system of sawing pulp-wood was invented by M. Elie Perron, while in the employ of the Chicoutimi Pulp Company. Patent in the United States and Canada was taken out in his name, and in that of M. Joseph Gagnon, of Chicoutimi, in 1900 and in 1906, and patent in Newfoundland has been applied for. They proceeded to manufacture the machine, and have placed it in a number of the large pulp

mills in Quebec, where it has met with signal success. In these days of scarce labor and high wages the new machine is a boon to pulp manufacturers. In a mill in Quebec where the company has installed an expensive sawing system made in Norway, requiring 18 to 20 men to operate, the Perron & Gagnon system of sawing was given a complete trial with the result that it was at once placed in use instead of the Norway plant. This consists of a system of circular saws which are operated by one man. An endless chain placed in a trough or conveyor carries the logs from the outside deposits them on a large table where a series of saws placed two feet apart revolve at high speed. Another endless chain system at right angles to the first carries the logs to the saws where they are sawn into two-foot lengths, and then into another chain conveyer which brings them direct to the pulp-wood barker. Perron, Gagnon & Co., in their announcement claim for their sawing machine that it will saw into two-foot lengths 500 twelve-foot logs per hour, or 100 per ten hour day, and only one man required to do the work. Surely this is a wonderful economy, and is worthy of study and adoption by pulp makers on account of its great saving in wage labor, and the large quantity of wood cuts. The whole installation takes up very little room, and can be placed in any mill at a reasonable cost, which will quickly pay for itself. In No. 2 mill of the Chicoutimi Pulp Co., one of these machines worked by one man ten hours per day easily supplies twenty grinds working twenty-four consecutive hours. Perron, Gagnon & Co., will gladly send a catalogue and further particulars to those interested.



HOLYOKE STEAM BOILER WORKS.

The Holyoke Steam Boiler Works (Inc.), Holyoke, Mass., U.S.A., is now to the paper mill trade in either the United States or Canada. Probab-

Our firm in its line has such a connection with the paper industry. Located in the "paper making" city of the American Republic, this company is in a fortunate position. They can see their furnaces, boilers, and digesters working from day to day in the large paper manufacturing plants, and are able to move promptly from time to time just as changes would be most advantageous for paper mill requirements. Mr. F. I. Sears, the manager of this company, is a recognized authority on boilers and furnaces, and his services to the company have resulted in building up the present large business. Read the firm's announcement in the advertising section.



NEW DRIVING MACHINERY INSTALLED AT WM. BARBER & BROS. PAPER MILLS.

Wm. Barber & Bros., Georgetown, Ont., have equipped one of their large paper machines with a special rope driver manufactured by James Bertram & Sons, Leith Walk, Edinburgh, Scotland. The new driver has been in operation only two weeks, and is giving excellent satisfaction. It is an innovation in the Canadian paper making industry. Arrangements to install it in the Barber Bros. mills were made by the superintendent, Mr. Finlay, who visited Scotland last year, and saw the driver operating in some of the large paper mills there. It practically does away with belting, and is generally considered more economic than the ordinary method now in use in most of the Canadian mills. The paper machine with which it is equipped is now running news extra, special papers, and coating stock for the Canada Coating Mills, which are also located at Georgetown. Owing to the increasing demand for the special papers and the coating stock it is intended at an early date to discontinue the manufacture of news print altogether. The second machine in the Barber Mills is running as usual on the machine finished book pa-

pers for which the firm has a large sale throughout the country. "The Pulp and Paper Magazine" is pleased to note that John R. Barber, the head of the company, who spent some time in the Old Land, and also at Saratoga Springs, N.Y., for the benefit of his health, has returned to business greatly improved. This will be gratifying news to the trade generally, among whom Mr. Barber is held in the highest esteem.



AMONG THE MILLS.

The Laurentide Paper Company has declared a dividend of one and three-quarters per cent. for the quarter ending June 23rd last.

At the Toronto Paper Co.'s mill, Cornwall, on June 8th, Geo. Langdon, aged 16, was caught in a sizing machine and had his arm and shoulder blade broken.

The Jenckes Machine Co., Limited, have recently shipped to the Alberta Portland Cement Co., Calgary, a complete hoisting plant, consisting of 40-H.P. Locomotive Boiler, and 7 x 10 Hoisting Engine, together with hoisting rope, steam piping, etc. The order was placed with the company's Rossland office.

The Elliott Paper Box Co.'s premises at 229-233 Richmond Street West, Toronto, were damaged by fire on June 18th. The blaze originated in the storeroom, about the centre of the building, and the flames spread up the elevator shaft. The total loss is about \$500, chiefly by water to the contents of the storeroom. There are twelve insurance companies interested in the loss.

Peter Murray was badly hurt on June 19th, while working at the Miramichi pulp mill, Chatham, N.B. Murray was working on the mill track at the time, and was pushing a wood car along when another came behind and knocked him down. He fell off the track to the ground. His left hip was found to be very badly dislocated and his body bruised. Murray was taken to the Hotel

Dieu Hospital, where the dislocation was reduced.

The future of Carrier, Laine & Co.'s machine shops at Levis, P.Q., is now under discussion. This firm which made engines and boilers, as well as some lines of pulp and paper mill machinery failed last year. The shops are in good condition and fitted with modern machinery. It is reported that the Nova Scotia Steel and Coal Co., are seeking to acquire the shops with the intention of enlarging them and going in for the manufacture of steel rails in them.

Among the recent orders for boilers secured by the Jenckes Machine Co., Limited, Toronto, to be built at the St. Catharines Works of the Company might be mentioned the following:—Three 70-H.P. 60" diameter by 14' long High Pressure Tubular Boilers for Adam Clarke, Hamilton; one 60-H.P. 54" diameter by 12' long boiler for Dominion Radiator Co., Toronto; one 40-H.P. 44" diameter by 12' long Tubular Boiler for the Superior Brewing Co., Port Arthur, Ont.; one 70-H.P. 60" x 14' High Pressure Tubular Boiler, one 25-H.P. 42" x 10' Tubular Boiler, and one 50-H.P. Locomotive Type Boiler for the Stuart Machinery Co., Limited, Winnipeg; and one

45-H.P. 48" x 14' Horizontal Tubular Boiler for Stevenson & Malcolm C. Guelph, Ont.

The London, England, offices of the Laurentide Paper Company, Limited have been removed to 69 Fleet Street directly opposite Wine Office Court.



PULP AND PAPER MARKETS

Toronto, July 14th, 1906

Summer conditions now prevail in the market. The demand for all classes of paper from news print to fine book not large, and the supply is slightly over the demand. Conditions, therefore, are not such as to make the mill men hopeful of securing for some time yet the advanced prices which they so earnestly desire. Wages for help are unusually high, and prices for pulp and paper still generally remain firm.

Some mills making manilla and wrappings report a very good demand at something like satisfactory prices, generally speaking the market has a "summer" tone, and movement is brisk.

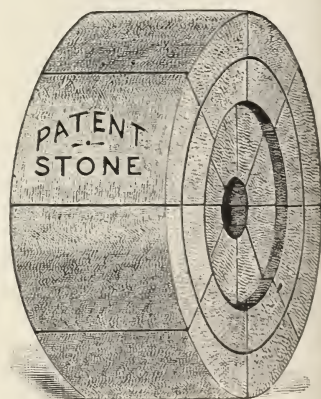
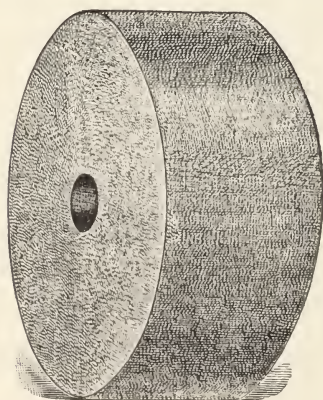
Ground wood continues firm at \$12.50 in Canada, and \$19 to \$22 delivered in the United States mills.

PULP STONES

ENGLISH, GERMAN and SCANDINAVIAN

ALSO THE

PATENT UNIVERSAL



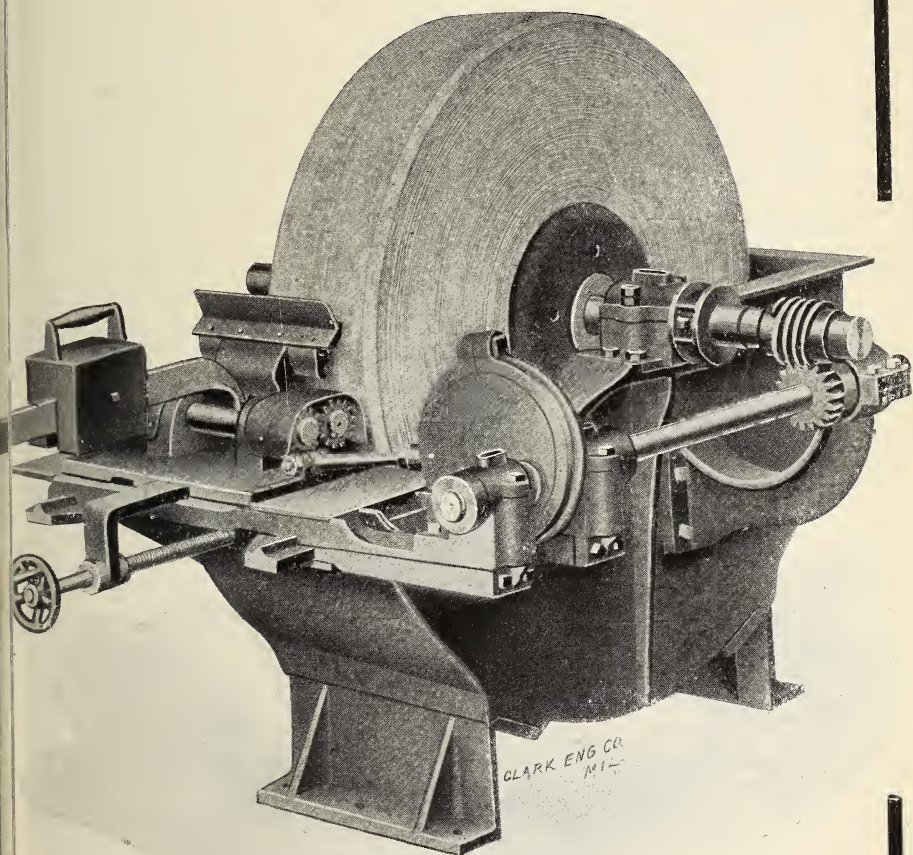
the construction of which gives to it advantages not found in the one piece stone.

Let us tell you about them

JEAN FREESE

132 NASSAU ST., NEW YORK, U.S.

Valley Iron Works Co., Paper & Pulp Mill Machinery Specialists



AUTOMATIC BARKER KNIFE GRINDER.

This machine has a capacity of 150 perfectly ground knives per day, and does not draw the temper of the knife—therefore effects a saving in your knife account. It is the only machine of its kind on the market.

WRITE US FOR PRICES.

Valley Iron Works Co., Appleton, Wis.,
U. S. A.

Holyoke Steam Boiler Works

INCORPORATED

T. H. SEARS, Mgr.

HOLYOKE, MASS., U.S.A.

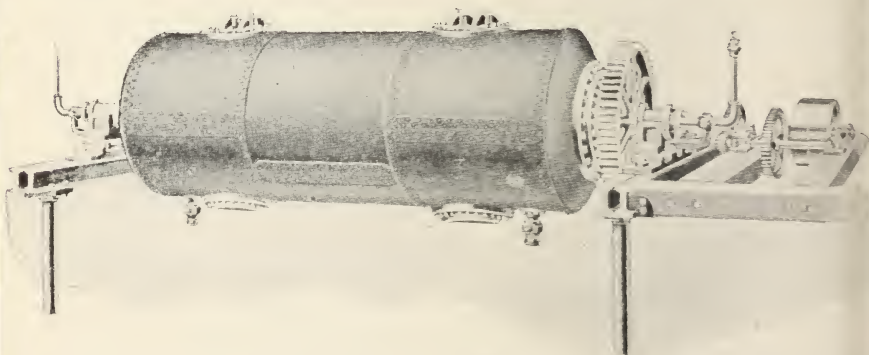
MANUFACTURERS OF

EXTENSION FURNACES. With Patent water circulating covers. Can be connected to any type of boiler. Patented in United States and Canada.

HIGH PRESSURE HORIZONTAL TUBULAR BOILERS. With special grates, bridge-wall, blow off, feed pipes, and tubes.

IMPROVED DIGESTERS. Strong and rigid, removing all possibility of cracking or checking the lining once set.

Improved Rotary Bleach Boilers.



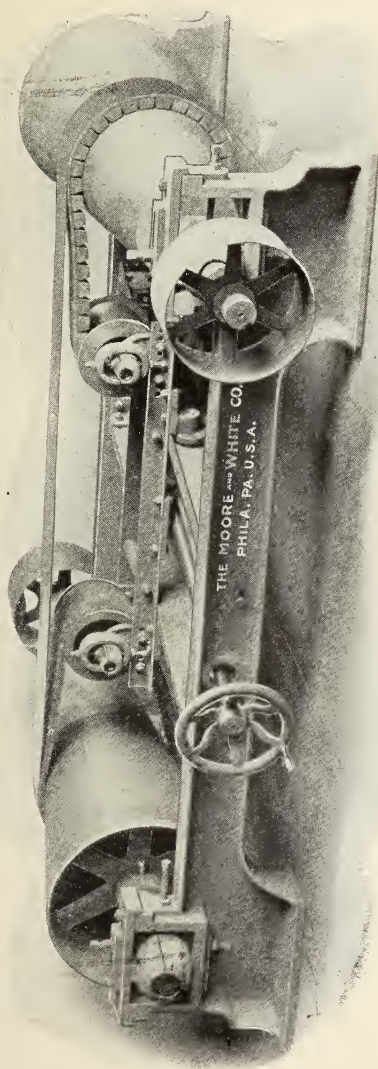
This cut illustrates our improved rotary bleach boiler the result of more than 30 years careful study and experience. The most complete of its kind in the world. Over 500 in use in Canada, United States and Mexico

IMPROVED VERTICAL BOILERS.

Embodying high economy, cheap maintenance, great durability, absolute safety, small floor space.

**We are Specialists in Boilers and
Furnaces for Pulp and Paper Mills.**

"Moore & White" SPEED CHANGE for Paper Machines.



WIDE BELT.

PERFECT CONTACT.

ANY DESIRED RATIO OF CHANGE.

Absolutely No End Thrust or Tendency Sidewise of
Transformers or Driving Belt.

The Moore & White Co.

PHILADELPHIA, U. S. A.

BUILDERS OF PAPER MAKING
MACHINERY

500 Twelve Foot Logs Per Hour

Cut into two-foot lengths ready for the barker. That is the ordinary capacity of

Perron Gagnon & Co.'s Automatic Pulp Wood Sawing Machine.

(Patented in United States and Canada, 1900 and 1906.)

One man alone operating the machine can cut 5,000 logs every ten hours without much exertion. Logs automatically conveyed to the saws, and from the saws to the barker.

A machine installed in the large No. 2 mill of the Chicoutimi Pulp Co. and operating 10 hours per day

Supplies Wood to Twenty Grinders Working 24 Consecutive Hours.

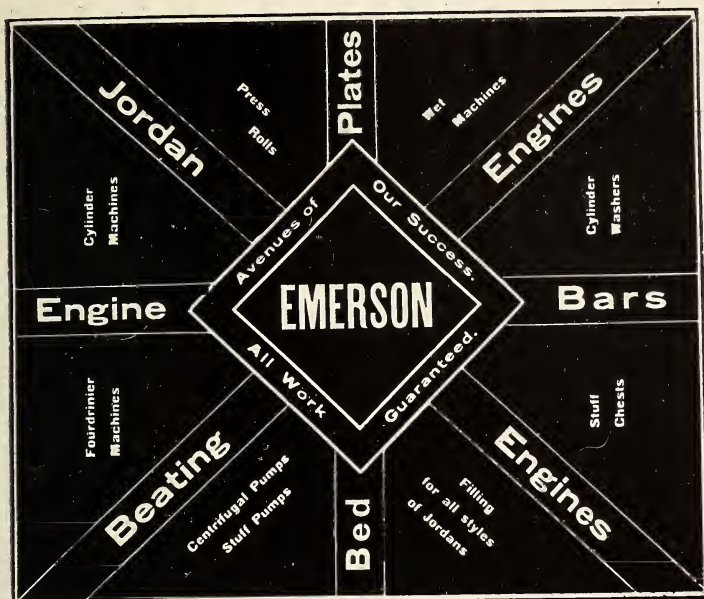
On account of its many advantages, and the fact that it requires only one man to operate, our machine has replaced expensive systems requiring the services of 18 to 20 men.

ECONOMISE IN YOUR WAGES BILLS, INCREASE YOUR
PRODUCTION, AND SWELL YOUR PROFITS.

This can only be done in the pulp mill by the use of our up-to-date sawing system. Write to-day for catalogue and particulars.

PERRON, GAGNON & CO.,
CHICOUTIMI, QUEBEC,
Patentees and Sole Manufacturers

EMERSON MFG. CO.



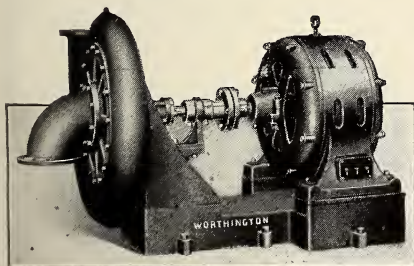
LAWRENCE, = = = MASS. ^F

Worthington Turbine Pumps,

Single or Multi-Stage.

For all heads and capacities.

Specially adapted for pulp mill use.



Worthington Turbine Pumps have no guards, no springs, no valves, no rubbing surfaces, no reciprocating parts.

John McDougall Caledonian Iron Works Co., Limited, Montreal.

BUILDERS FOR CANADA.

DILLON MACHINE

COMPANY

BUILDERS OF

PAPER MILL
MACHINERY

FROM NEW DESIGNS

Beating and Washing Engines, No. 1 and No. 2. Refining Engines, Stuff Pumps, Single, Double and Triple, all sizes, fitted with the Dillon Patent Valve Seating, Wet Machines, Stuff Chests, Horizontal and Vertical, all sizes, Single and Double Paper Cutters, Backstands, Dillon Patent Calender Doctors and Feeds, Jordan Filling, Roll Bars, Bed Plates and Cutter Knives.

OFFICE AND WORKS

LAWRENCE, MASS., U.S.A.

MIRAMICHI PULP & PAPER CO., Limited.

CHATHAM, N. B.

Manufacturers of High Grade Easy Bleaching

Sulphite Pulp

Suitable for Writing and Book Papers

ESTABLISHED 1878

George E. Hanson

Expert Manufacturer of High-Class

FELTS

FOR SULPHITE AND GROUND WOOD PULP MILLS

Only best of stock is used in making these goods. I am supplying some of the best Mills in Canada, among them being, The E. B. Eddy Co., Hull; J. R. Booth, Ottawa; James Maclaren Co., Buckingham, Que.; Nova Scotia Pulp Co., N.S.; Lake Megantic Pulp Co., Lake Megantic, Que.; A. J. Morrill, Nicolet Falls, and others.

A trial order would be appreciated.

HULL WOOLEN MILLS, HULL, P.Q.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,
Ejector Vacuum Pumps — Bertrams Limited — Patent.

DR. C. WURSTER'S Patented Pulping Machines & Kneaders

OVER 200 SOLD

LARGE PATTERN — Four Sizes.

PULPING-UP 3, 6 and 9 and 12 tons of Dry Papers or Pulp in
24 hours.

POWER—5 h.p., 8 h.p., 12 h.p. and 15 h.p.

SMALLER PATTERN—For Sorted Papers only.

PULPING-UP 2 to 3 tons of Dry Paper in 24 hours. 2 to 4 h.p.
Built in Iron.

For Better Quality Papers, Trough and Propellers made of Brass.

Special Machines for Unsorted Paper.

These Machines do not Grind, Cut-up, or Wet the Fibres, and as the State of Beating and Refining is Unaltered, neither Color nor Sizing being Affected, and Impurities not touched, "BROKE" can be Re-used for the Same Quality of Paper again.

FOR PARTICULARS APPLY TO

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.
ENGLAND.

RAG AND PAPER STOCK MARKETS.

Montreal, July 14th, 1906.

There has been very little change in this market during the past month.

Manilla rope has kept advancing in price, but is so scarce that there are few transactions. We leave our quotation at last month's figures, but the price is strong at that.

For bagging there is a good demand at current prices.

Cotton rags and the lower grades of waste paper continue dull.

Roofing and wrapping stock continues at fair demand.

The weakening tendency which was apparent, in the paper stock market, during June, does not appear to have materialized. Stocks are not large anywhere, and there is a fair probability that prices may advance towards autumn.

Quotations are as follows:—

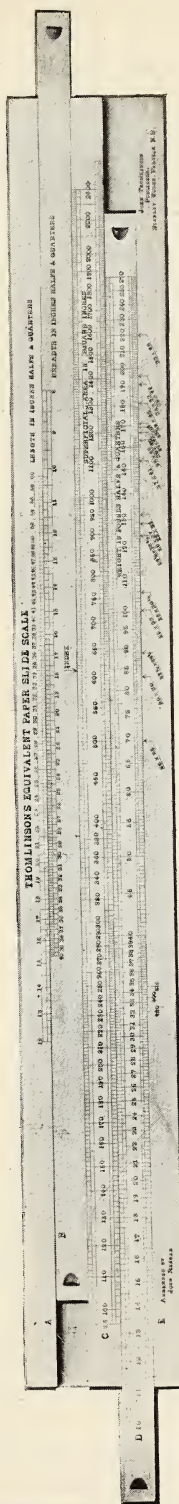
No. 1 white shirt cuttings.....	\$5.50 to \$6.00
Light print cuttings.....	4.00 to 4.50
Unbleached cuttings.....	4.75 to 5.25
White shoe clips.....	4.50 to 5.00
Colored shoe clips.....	3.25 to 3.75
Domestic white rags.....	2.25 to 2.50
Blues and thirds.....	1.25 to 1.40
Roofing stock.....	.80 to 1.00
Manilla rope.....	3.50 to 4.00
Waste papers.....	.35 to .40
Bagging.....	1.00 to 1.10



—Never in the history of Miramichi, N.B., has the lumber outlook been so promising as at present. It is expected that every stick cut last winter and what was hung up from last season will reach the booms, in fact the greater portion of it has reached the booms and rafting operations are well under way. Already there are in the Southwest boom upwards of 50,000,000 feet of lumber, and it is estimated that between 20,000,000 and 25,000,000 are yet to come.

YOU NEED IT

For calculating the relative weights of different sizes of paper and similar calculations employing "the rule of three."



Price in Waterproof Cardboard, \$3.50 each.
Price in Extra Finished Boxwood, \$15.00 each.

Write now for booklet.
84 WELLINGTON STREET WEST, TORONTO, CANADA.
— RITCHIE & RAMSAY, Limited,

Cable Address,—“Kaolin, Manchester.” A.B.C. Codes, 4th & 5th Editions

CHINA CLAY CO.

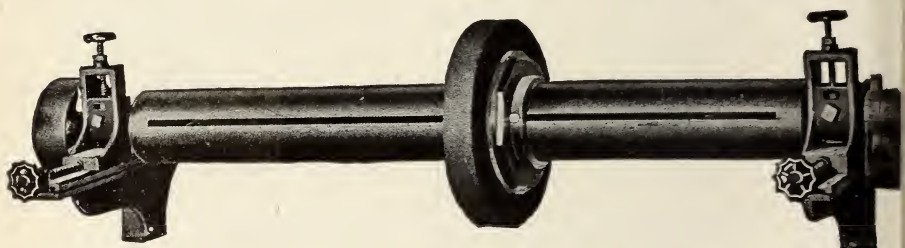
JOHN WILLIAMSON, Manager.

4 St. Annes's Square

MANCHESTER, ENG.MINES—Ruddle, Bojea, Colchester, South Ninestones, Tronance, St. Austell
Cornwall.

CONTRACTORS TO H.M. INDIAN GOVERNMENT

“The Roy Patent Calender Roll Grinder”

**B. S. ROY & SON, - Worcester, Mass. U.S.A.**

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders
Pumps, Heaters

F. H. DAVIS & CO.161 Devonshire St.,
BOSTON, - - MASS.

NEW COMPANIES.

The Western Systems Co., Winnipeg, Man., will establish a large plant for the manufacture of loose-leaf ledgers, etc. J. McKenzie and J. E. Roberts, Winnipeg, are interested.

The Manitoba Scotsman Co., Winnipeg, Man., have been incorporated with a capital of \$25,000, to manufacture paper, stamps, stencils, etc. The provisional directors include J. P. Robertson, H. Madison, and H. S. Paterson, Winnipeg.

The Hebrew Echo Publishing & Printing Co., Winnipeg, Man., have been incorporated with a capital of \$2,000, to carry on a publishing and printing business. The provisional directors include H. Haid, L. Goodman and M. Wadlinger, Winnipeg.

Another industry will, in a short time, be added to the ever-increasing list of those situated in Peterborough, Ont. The latest addition is the German Card-board and Photo mount Company, who intend to erect a factory in Peter-

borough within a short time. Peterborough capitalists are interested in the new concern, which will start with every assurance of a successful business career. The company will go extensively into the manufacture of card-board, photo mounts, calendars, and other similar articles, for which there is a great demand.

The Canadian Star Publishing Co., Winnipeg, Man., have been incorporated with a capital of \$10,000, to carry on a printing and publishing business. The provisional directors include W. Lisowey, W. Rutko and M. Sloboda, Winnipeg, Man.



DAVEY PULP MILL RE-OPENED.

The Davy Pulp mill at Thorold, Ont., which was closed down during the installation of some new machinery and improvements to the old, re-opened again for work on June 18th.

D'Oyley Mears & Co.,
PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
Walrope Chambers, Queen Victoria Street,
London, E. C.

THE RIORDON PAPER MILLS, Limited.

Merritton and Hawkesbury, Ont.
Merritton Mill—Newspaper, Hanging
Paper, Wrapping Paper and Building
Paper and Sulphite Pulp.
Hawkesbury Mill—Sulphite Pulp.

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, 82 Beaver Street, New York.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway)	..	Kirkegaden No. 20.
GOTHENBURG (Sweden)	..	Lilla Kyrkogatan No. 20.
MANCHESTER	..	Guardian Buildings (opposite Exchange).
LONDON	.. .. .	77a Queen Victoria Street, E.C.
PARIS	.. .. .	Rue de Londres No. 29.
ANGOULEME (France)	..	43 Rue Louis Desbrandes.
LYONS	.. .. .	54 Cours Gambetta.
MILAN	.. .. .	24 Via Solferino
TOLOSA (Spain)	.. .. .	18 Calle San Francisco.
NEW YORK	.. .. .	99 Nassau Street.
ST. PETERSBURG	.. ..	Little Podjascheskaja House, 4, Qu. 16.

Telegraphic Address :

“WERTHEIMO, HAMBURG.”

ARKER,
CHIPPER,
PAPER-CUTTER

MACHINE KNIVES

Of Every Description.

The Peter May Knife Co., Limited, Galt, Ont.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.

DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.



REGISTERED.

JOHN KNIGHT & CO.,

CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents
for the ...

L.G.V., W.F.,



and other
Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

1906
Edition

Price 10/6 net, or post free in United Kingdom 11/-; Abroad 11/6. Demy 8vo., cloth bound, 6,050pp.

1906
Edition

The Paper-Makers' Directory of all Nations.

Annuaire de la Papeterie de Toutes les Nations.

Internationales Adress-Buch Sammtlicher Papier-Fabrikanten der Welt.

Alphabetically arranged throughout. Printed in clear type.

CONTENTS INCLUDE:

PRINCIPAL PAPER, PULP and BOARD MILLS, &c., OF THE WORLD (5,000) arranged according to countries (40), giving Names, Addresses, Makes of Paper, Number and Width of Machines, Weekly Turn Out, Power Used, Telegraphic Addresses, &c., &c.

FIRMS CLASSIFIED according to PRINCIPAL PRODUCTIONS.

BRITISH PAPER AGENTS AND MILL REPRESENTATIVES with Addresses and Firms Represented.

WASTE PAPER and RAG MERCHANTS and PAPER STOCK DEALERS (British).

CHINA CLAY DEALERS (British).

EXPORT MERCHANTS AND SHIPPERS OF PAPER.

WHOLESALE STATIONERS AND PAPER MERCHANTS.

ENAMELLERS, VARNISHERS, SURFACERS and STAINERS OF PAPER, &c. &c. &c.

CARDBOARD AND PAPER BOX MANUFACTURERS.

TO BE OBTAINED FROM

DEAN & SON, LIMITED, 160a, Fleet Street, London, E. C.

STUFF PUMP

This pump is made in three sizes, 5", 6" and 8".

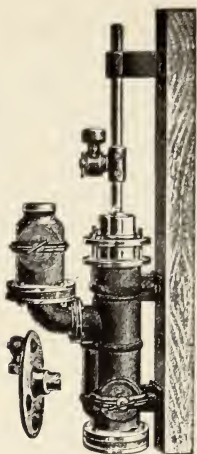
The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by

T. McOUAT & SON, Lachute, Que.,



MAPLE LEAF
STITCHED COTTON DUCK
BELTING
DOMINION BELTING CO. LTD.
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of

**GRADED RAGS, PAPER STOCK
ROPE BAGGING, ETC.**

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction Boards.
Mills at Sault au Recollet, P.Q.

ATTERBURY BROTHERS, Incorporated
Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

WIRE ROPE
"ACME" BRAND

Highest grade of hoisting rope made.

Extra tensile strength for heavy work.

Use Greening's rope grease for lubrication.

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

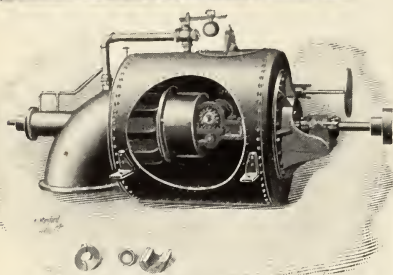
Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.

BELOIT IRON WORKS,

BELOIT, WIS., U. S. A.



CROCKER TURBINE



Various styles of setting to suit different locations, and heads up to 150 feet. If you have a Water Power to develop, we should be glad to have you write us. Ask for bulletin No. 200.

SALES OFFICES:
TORONTO
ROSSLAND
HALIFAX
VANCOUVER

THE JENCKES MACHINE Co.,

EXECUTIVE OFFICE

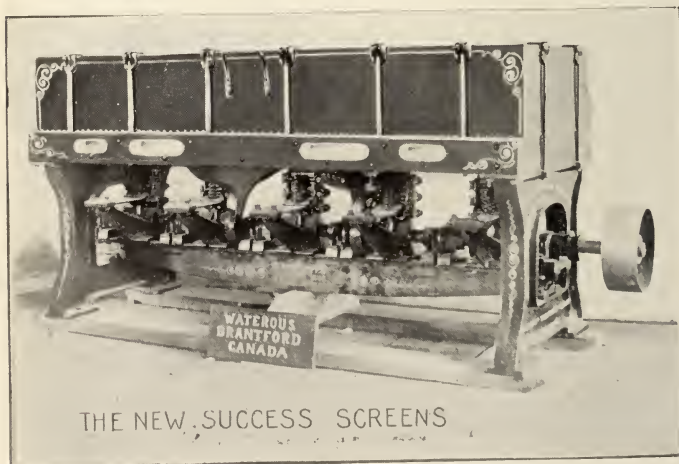
LIMITED.

61 Lansdowne St. Sherbrooke, Que.

PLANTS: Sherbrooke, Que.
St. Catharines, Ont.

We manufacture a full line of

PULP MILL MACHINERY



We repair and
make over
Cylinder
Moulds.

Write for Special
Catalogs.

The Waterous Engine Works Co., Limited

BRANTFORD, - CANADA.

"CHALK WHITE" COATED BOOK PAPER.

The best and whitest coated paper sold. — All regular sizes and weights in stock.

The Cover of this magazine is our Art Litho Cover, stocked in four sizes, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO. LIMITED

Pidsor Mills, Que. = Montreal. = Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

S. YOUNG, = = Sole Agent for Canada.
14 Hospital Street, Montreal. F

"TURBINE WATER WHEELS"

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from
S. MORGAN SMITH Co.,
YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company,	14,000 h.p.
Montreal Cotton Company,	7,000 h.p.
Sturgeon Falls Pulp Co....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England.

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

JOSEPH H. WALLACE, C.E.

M. AM. SOC. C. E. M. CAN. SOC. C. E.

INDUSTRIAL ENGINEER.

TEMPLE COURT BUILDING, NEW YORK

CABLE ADDRESS "TRIPLEX," N.Y.

MANUFACTURING PLANTS AND POWER DEVELOPMENTS
REPORTS ON INDUSTRIAL PROPERTIES, APPRAISALS, ETC.

A. V. JAASAD, M.E., CONSULTING STEAM ENGINEER.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland, = = Montr

PULP AND PAPER MAGAZINE OF CANADA

VOL. 4. TORONTO AUGUST, 1906. NO. 8.

FEATURES OF THIS NUMBER

Foreign Capital in Canada

Spanish River Pulp Mill

Western Forest Reserves

Patents Affecting Pulp and
Paper Machinery

News of the Mills

Established 1837

Incorporated 1867

RICE, BARTON & FALES

MACHINE & IRON CO.

CHARLES S. BARTON, Prest & Treas.
GEORGE S. BARTON, Secretary.

WORCESTER, MASS.

BUILDERS OF

Modern Fast Running and Heavy Four-
drinier and Cylinder Machines for Making
Paper, and Drying Pulp.

Double Drum Vertical Winders and Re-Winders.

Upright and Revolving Reels.

Large and Heavy Wet Machines.

Revolving Cutters and Layboys.

Hill Patent Diagonal Cutters, which can be equipped with
Slitting Arrangement, and Reeling Off Bars.

Chilled Iron Calender Rolls.

Screens and Screen Plates.

Stuff, Suction and Fan Pumps.

Patent Top and Double Edged Slitters.

Pneumatic Re-Winders for Small Rolls.

Additions and Changes made to Old Paper Machines
Greatly Increasing Speed and Capacity.

Makers of the Moore Patent Horizontal Revolving
Screen for Ground, Soda, and Sulphite Pulp.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

ESTIMATES ON APPLICATION.

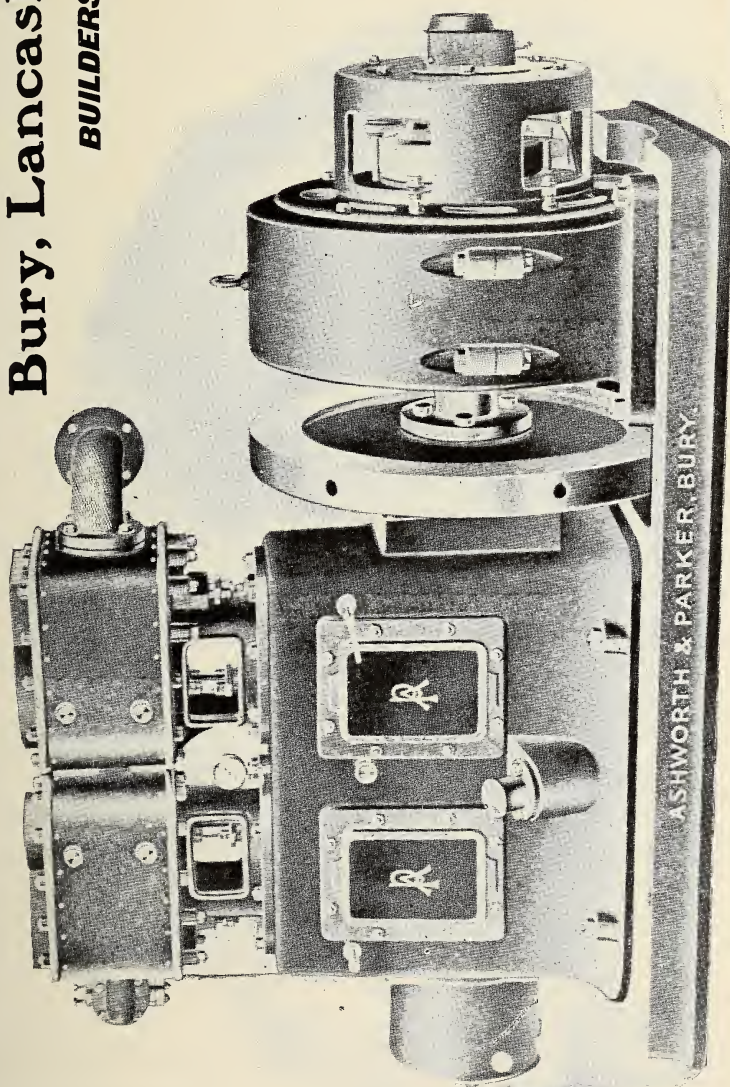
Cable Address "Kinetic," Bury.

Ashworth & Parker

Bury, Lancashire, Eng.

BUILDERS OF ...

**Forced
Lubricating
Engines,
Special Types
For Paper
Machine
Driving,
Electric
Generating
and
Centrifugal
Pumping.**



BERTRAMS, LIMITED

Papermakers'

Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermakers
embracing British, American and Continental Improvements

C. H. JOHNSON & SONS, Ltd.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rds.

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England.

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

Agents for Canada : C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL

INDEX TO ADVERTISEMENTS.

aworth & Parker	5	Israel, Gebruder	36
erbury Bros.	52	Jenckes Machine Co., Limited	12 & 54
cker & Co.	32	Johnson & Sons, Limited, C. H.	6
oit Iron Works.	53	Klipstein & Co., A.	11
atley & Jackson.	4	Kimball, Herbert S.	9
etram's, Limited	6	Knight & Co., John	45
ick-Clawson Co., The	7	Lea & Coffin, and H. S. Ferguson	9
edt & Co., F.	10	Little, Arthur D.	9
inner, Mond & Co., Limited	56	Masson, Scott & Co., Limited	206
Canada Paper Co.	55	McDougall Caledonian Iron Works, The	
Canadian Rubber Co. of Montreal.	8	John	43
stle, Gottheil & Overton	9	McOuat & Son, T.	52
ina Clay Co.	48	Mears, D'Oyley & Co.	49
Cristie, J.	50	Miramichi Pulp & Paper Co.	45
Cristie, Limited, George	3	Moreau Barking Machine Co.	38
Ivis & Co., F. H.	48	Moore & White Co.	43
ICew, J. A.	9	Norwood Engineering Co.	49
ilon Machine Co.	44	Paton, Thomas L.	3
Iminion Belting Co.	52	Perrin & Co., Ltd., Wm. R.	48
Ion & Brownell.	8	Perron, Gagnon & Co.	42
erson Mfg. Co.	43	Porritt & Sons, Joseph.	10
irbanks & Moody	9	Porritt & Sons, Limited, Samuel	56
Echer, Julius	e.o.m.	Porritt Bror. & Austin.	6
Eese, Jean	3	Pringle & Son, T.	9
Eese, Jean (Pulp Stones)	184	Pulp & Paper Trading Co., The.	51
Enning, The B., Wire Co., Limited.	52	Pusey & Jones Co.	46
Enson, Geo. E.	45	Quebec & Lake St. John Ry.	8
Erdy, George F.	9	Reeves Pulley Co.	34
Erksworth & Sons Co., Limited, Alfred.	12	Rice, Barton & Fales.	2
Er Knife Co., Limited, Peter	51	Riordon Paper Mills, Ltd.	49
Eryoke Steam Boiler Works.	40	Ritchie & Ramsay.	47
Erne, J. H., & Sons Co.	10	Roy & Son, B. S.	42
Eugh, R.	56	Smith Co., S. Morgan	55
International Pulp Co.	9		

(Continued on Page 8.)

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.

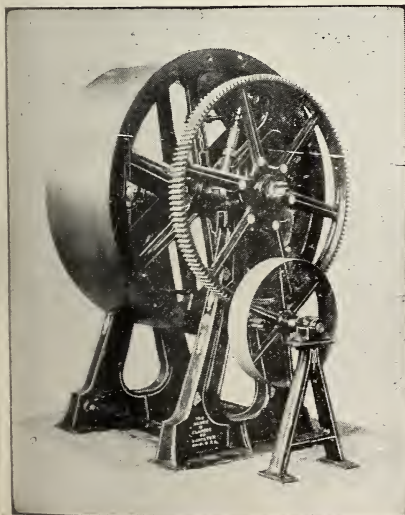
Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

from new patterns and de-
signs embodying the latest
improvements.

Foot-power Perforators.
3 Roller Ink Mills.
Evaporating and Drying
Machinery.

We Solicit Correspondence.



Honest
Value



Com-
plete
Satisfac-
tion

We Make a Specialty of Covering
**Couch, Press
and
Squeeze Rolls
For PULP and
PAPER MILLS.**

**Rubber Diaphragms
for Screens.
Deckle Straps.**

**Rubber Belting,
Packings, Valves,
Gaskets, Fire,
Steam and Water
Hose, etc., etc.**

**WRITE US FOR ALL Your
Requirements in Rubber.**

**THE CANADIAN RUBBER CO.
OF MONTREAL, LIMITED.**

SALES BRANCHES:

155 Granville Street, Halifax, N. S.
Imperial Bank Building, St. James St.,
Montreal, Que.
Front and Yonge Sts., Toronto, Ont.
89 Princess Street, Winnipeg, Man.
Regina, Sask.
Calgary, Alta.
493 Cordova Street, Vancouver, B. C.
Victoria, B. C.

D. LORNE MCGIBBON,
Vice-President and Managing Director.

INDEX TO ADVERTISEMENTS.

(Continued from page 7.)

Union Screen Plate Co.....
Union Sulphur Co., The.....
Vogel, C. H.....
Valley Iron Works Co.....
Walker, J. R. & Co.....
Wallace, Jos.....
Waterous Engine Works Co., Ltd.....
Wertheim & Co., A.....
Whittaker, Richard.....
Wilson, Paterson & Co.....
Winn & Holland.....
Wurster, Dr. C.....
Young, J. S.....

The British consul-general in Ge
many mentions a novelty for packin
purposes in the shape of a paper ma
of aluminium, to be used chiefly for th
packing of food stuffs, and which, a
against the customary tin-foil, enjo
the advantage of greater resistance t
the effects of water, alcohols, oils an
grease. It is manufactured in tw
kinds, firstly of oil paper coated by
special process with aluminium, an
secondly thin foils rolled from pu
aluminium.

CHARLES E. EATON,
M. Am. Soc., M. E.

JAMES P. BROWNELL,
C. E.

EATON & BROWNELL,

Consulting Engineers and Architects.

Paper, Pulp and Fiber Mills, Water, Steam and
Electric Power Development, Examination of
Properties, Consultation Reports.

SMITH BLDG. WATERTOWN, N. Y.



**QUEBEC
AND
LAKE
ST. JOHN RAILWAY**

This Railway runs through Two Hundred
Miles of the Finest Spruce Forests
America, through a country abounding
Water Powers suitable for Pulp and
Paper Mills and other industries, and
easy access to the Steamship Docks
Quebec.

ALEX. HARDY,
G.F. & P.A.
QUEBEC, P.Q.

J. G. SCOTT,
General Manager

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT and ENGINEER

SPECIALIST IN

Pulp and Paper making.

F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
101 Tremont St., Boston, Mass.

Designs, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and Pyrites Burners for the Sulphite Process.

F

GEORGE F. HARDY, M. AM. SOC., M.E.,
M. CAN. SOC. C.E.

Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of Mill Properties, Water Power Developments.

Mutual Reserve Building, - 309 Broadway,
NEW YORK.

'Asbestine Pulp' Filler

Superior to any Clay.

Delivered price on application.

INTERNATIONAL PULP CO.

New York City, U.S.A.

T. PRINGLE & SON

Specialities:—Pulp Paper and Fibre Mills,
Hydraulic Developments and Electrical
Transmissions

409, 410, 411, 412 Coristine Bldg.,
MONTREAL.

F

C. H. VOGEL

A. M. Can. Soc. C.E.

ENGINEER

OTTAWA, CAN.

WATER POWER

Paper, Pulp and Sulphite Fibre Mills

LEA & COFFIN, and H. S. FERGUSON, ENGINEERS.

Pulp, Paper and Chemical Fibre Mills,
Water Power Development and Trans-
mission. Steam Power Plants.

CORISTINE BUILDING, MONTREAL.

A. S. FAIRBANKS, Assoc. Mem. Can. Soc. C. E.
Assoc. Am. Inst. E.E.

H. A. MOODY, B.S., M.E.,
Assoc. Mem. Am. Soc. M.E.

FAIRBANKS & MOODY

Industrial Engineers

Paper and Pulp Mills

Hydraulic Development

150 Nassau St., New York.

J. A. DeCEW, B.A. Sc.

Chemical Engineer.

SUN LIFE BLDG., MONTREAL

Specialist in Soda Fiber and Paper Mill Chemistry.

Patented Processes for Digesting, Causticizing, Evaporation, Recovery.

Consultation.

Advice.

Reports.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

Suit Against Grand River Pulp Co.

The Quebec Government has retained Honore Gervaise, M. P., as counsel in the suit entered by the province against the Grand River Pulp and Lumber Co., for one hundred thousand dollars damages for timber cut on Hamilton Inlet, Labrador, claiming it was taken off territory of the province. The company has a charter and concessions from the government of Newfoundland which also claims jurisdiction. Incidentally,

the result of the case will be to settle a long standing boundary dispute between the Dominion and Newfoundland.

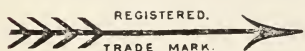


The Indestructible Fibre Co., of Mesena, N.Y., is going to establish a branch pulp and paper mill at Ottawa. A site and waterpower have already been secured, and \$50,000 worth of stock subscribed for. The manager of the concern is John Joly.

JOSEPH PORRITT & SONS HELMSHORE NEAR MANCHESTER FELTS

and JACKETS FOR PULP and PAPER MILL

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes



Agents for the States and Canada,

F. BREDT & CO., - 240 Water Street, NEW YORK.

Established 1864

Incorporated 1888

J. H. HORNE & SONS CO.,

LAWRENCE MASS.

MANUFACTURERS OF HIGH-GRADE

PAPER MILL MACHINERY

Beating and Washing Engines

"Jordan" Engines

"Horne" Improved Patent Engines

"Cloudman" Cylinder Washers

FOURDRINIER, CYLINDER & WET MACHINES

"Horne" Friction Cutters

Fan Pumps

Rag Knives

Cone Pulley Cutters

Stuff Pumps

Roll Bars

"Horne" Calenders

Calender Rolls

Bed Plates, Etc.

ORDERS FILLED ON RECEIPT

GET OUR CATALOGUE

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal

**Sulphate
Alumina**

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y



127 BOARD OF TRADE BLDG., MONTREAL.

Agents for the United Alkali Co. of England

OFFER TO THE TRADE:

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.

F



VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature, or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leathers. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Hawksworth & Sons Co., Limited,
Mill Engineers and General Furnishers
551 St. James Street, - Montreal.



STEEL PLATE WORK

Steel Penstocks, Steel Smoke Stacks, Smoke Connections, Steel Tanks, Refuse Burners, and all manner of Steel Plate Work.

Estimates promptly and cheerfully Furnished.

Sales Offices:

TORONTO

HALIFAX

ROSSLAND

VANCOUVER

THE JENCKES MACHINE Co.,

EXECUTIVE OFFICE LIMITED.

60 Lansdowne St. Sherbrooke, Que.

PLANTS: Sherbrooke, Que.
St. Catharines, Ont.

THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 4.—No. 8.

TORONTO, AUGUST, 1906.

\$1 A YEAR
(SINGLE COPY 10c.)

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

SUBSCRIPTIONS: Canada, British Empire and the United States, \$1 a year; to Foreign Countries, 5s. a year.

The Pulp and Paper Magazine is published on the first Tuesday of each month. Changes of advertisements should be in the publisher's hands not later than the 10th of the month, and, where proofs are required, 15 days earlier. Cuts should be sent by mail, not by express.

E. B. BIGGAR,
PUBLISHER

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

FOREIGN CAPITAL IN CANADA.

Indications point to large aggregations of European capital finding a field for their energies in Canada. German money has already been invested in Canadian banking, and is said to be looking up industrial openings; French savings are being put into more than one class of financial enterprise; when the flow of the tide begins in earnest, it is likely to become a flood. This means great things for the Dominion; it was bound to come sooner or later, but has been delayed too long. The influx of British capital has already become notable, and bids fair to assume very large proportions in the near future. In mining, manufacturing, in agriculture, the opportunities for the employment of British

capital have been wide open for years past, and it has been matter for regret that they have been seized so largely by our keen-eyed neighbors, welcome though these were, too. But, as we have said, the tide has taken a turn, and it appears likely that the development of our country's enormous resources will not be kept waiting for lack of outside capital.

The British and European nations have stood on tiptoe watching open-mouthed the wonderful progress of the United States. But, if they would only realize it, that is nothing compared with what it is going on to-day in this Dominion. According to latest returns, Canada's increase of exports last year was \$7.40 per head of population, that of the United States only \$2.60; Canada's increase of imports, \$5 per head, that of the United States only \$1.30. In the past ten years, United States foreign trade increased no less than 80 per cent., but Canada's increased by 130 per cent. The total trade of Canada at the present time is \$92 per capita; that of the United States only \$35. The people of the United States have done wonders, but do the capitalists of the world realize what these facts about Canada mean?

The only cloud on the horizon is the insufficiency of labor to carry out the manifest destiny of the Dominion, to become a great and very rich nation. But

this is a drawback which the people of Great Britain and other European countries have it largely in their own hands to remedy. To quote the words of Sir Wm. Van Horne:

"There is work for all. Every two or three men that come into Canada and do a day's work create new work for someone else to do. They are like a new dollar. Hand it out from the bank and it turns itself in value a dozen or more times in a year."

So much for the argument for unrestricted immigration. Against it is the experience of our neighbors. When Europe first began to pour thousands and hundreds of thousands of the poorest and most degraded of its population into the United States in search of the liberty and fortune denied them in their own countries, a few far-sighted men raised protest. But Henry Ward Beecher replied, "Let them come. We can digest them all before breakfast."

Few Americans would say the great preacher's forecast has been verified; the unassimilated population of the United States is probably its toughest problem to-day.



MUNICIPAL POWER FOR ONTARIO.

The possibilities of the Government-inspired scheme for municipally owned power development are so far-reaching in their results, and the interests involved so great that it is no wonder the figures of Mr. Cecil B. Smith and his coadjutors on the Hydro-Electric Commission are still being discussed with vim, not to say venom. Objections and replies to those objections are still pouring in; and so far,

to the mind of the unbiassed observer, it does not appear that the objectors have proved their case. Meanwhile, there is a small but solid sentiment in favor of leaving Niagara Falls severely alone both by Government and private enterprise.

The case against the interference of sentiment with a gigantic business proposition is admirably stated, however, by Mr. H. W. Buck, an electric engineer who has had a good deal to do with power development work at the Falls. He calculates that the available water there represents 3,500,000-h.p., or the equivalent of 50,000,000 tons of coal per year, and that this power can be generated at \$35 per h.p. less than possible by the use of coal and steam engines. This means that if the Falls were fully utilized there would be a saving to the consumer of \$122,500,000, or an annual saving in coal of 50,000,000 tons.

The waste involved in prohibiting the development of such a power he likened to a great fire consuming 50,000,000 tons of coal. Such a conflagration might be one of the most magnificent sights in the world, and people might come from all parts to view it, but the human race would certainly be justified in using every effort to stop the waste by putting out the fire. Moreover, in his view, even a very extensive use of the power would not necessarily mar the beauty of the Falls.



SOUTH AFRICAN TARIFF.

In the new South African customs tariff schedule the features of most interest are the elevation of the rate

ordinary unclassified articles from 10 to 15 per cent. and the increase of rate on goods from the United Kingdom or British possessions which have agreed to reciprocal relations by from $2\frac{1}{2}$ to 3 per cent. The South African Customs Union has issued a hand-book specifying 1,250 separate articles, and a study of this shows that nearly one fourth of these items continue to come within the range of the 10 per cent ad valorem rate. Goods manufactured in Britain or the reciprocating colonies will pay 12 per cent as against $7\frac{1}{2}$ per cent. In the first quarter of the current year 71 per cent of the value of goods imported into

South Africa were from the United Kingdom, so the goods on which the full duty will be levied are very limited. The preference allowed for goods of British origin is reduced from 25 per cent. of the ad valorem duty under the old plan to 20 per cent. under the new. In other ways the intention of the framers of the new policy to protect home industries is indicated. The free list, for instance, which used to contain sixty-eight articles, has been cut down to 44. Besides this the ad valorem duty is advanced to 3 per cent., the whole of it, as before, being withdrawn on British goods. To sum up, it may be stated that British or colonial goods will pay, under the new schedule, approximately the same duties as foreign goods paid under the old. It should be noted, however, that wood pulp and gum, which formerly were charged $2\frac{1}{2}$ per cent. are now put on the free list. Against this, printing paper, inks, bookbinders' materials and glue have been taken off the free list, and 8 per cent. ad valorem duty added, with a rebate of the whole amount on goods from the United Kingdom.

Pulp & Paper Currency

Exceptional activity is reported in the paper trade of Australia. All the mills are working full time. In several, large extensions have been made, and new machinery added.



Two Southerners have invented a process for producing paper from resinous wood, or rather a process for the production of paper pulp, terpenes and resinous substances. The volatile and resinous matters are removed at an early stage, and before the reduction of the wood to a pulp, and all coloring matter is removed from the fatty wood by digestion without injury to the fibre.



The proposals of Sir Joseph Ward, the new Premier of New Zealand, for reciprocity with the United States may, if they bear fruit, have some effect on the Canadian paper trade with the Island Colony, to extend which efforts are being made. Part of his proposition is to admit American printing paper and canned salmon free, in return for the United States admitting New Zealand wool and gum.



The Norwegian raw stuff market has an upward tendency. Cellstuff is firm, and offers of 70 kr. for ground wood find few acceptances. All the Swedish mills are busy, and deliveries are behind-hand. Sulphite is scarce; prices of ground wood are unsettled, owing to plentiful supplies of brown ground wood papers in London. It is expected that the price of chemical will drop a year hence, when several new mills will be ready for deliveries.

Mr. C. E. Sontum, Canadian Trade Agent in Norway, states that an industry of increasing importance in that country is the production of wood flour, which last year reached the quantity of 5,292,980 pounds, valued at \$1.20 per 220½ pounds. The principal part of this has been exported to Germany and England, where it is used by the oilcloth factories, partly also by dynamite factories. The wood flour is, as a rule, shipped in sacks of 220½ pounds each. There have been built in Norway recently several mills for the production of wood flour, but many of them have been burnt down, very likely by self-ignition, so that particular care is required in the manufacturing of this article.



Forestry and Pulpwood

In Wisconsin pulp-wood is so scarce that some of the mills are said to be buying hemlock slabs from the lumber mills to be made up into sulphite fibre.

Dewar's saw mill, owned by the St. George Pulp and Paper Co., at St. John, N. B., has been destroyed by fire. The mill was valued at \$5,000, and sawn lumber, also destroyed, at \$50,000.

The Minnesota capitalists (represented by A. J. Mulvey) who own extensive timber holdings on Queen Charlotte Island, covered with cedar, fir and spruce, are choosing a site for large mills very close to the new G.T.P. terminus.

The announcement that the Dominion Government intends probably to enlarge and extend the Welland Canal is creating considerable interest among the shippers of lumber and other material by way of the Lakes and St. Lawrence.

The largest timber deal in the history of the north shore of the Georgian Bay was put through early this month, when Holland & Graves, of Byng Inlet, purchased from the Sarnia Bay Lumber, Timber and Salt Company five town-

ships, each containing thirty-six square miles, or 180 square miles in all. The price paid was a record one, being about \$1,500,000.

The Temiskaming & Northern Ontario Railway Commission are negotiating with New York capitalists for the erection of a pulp mill at New Liskeam where there are a good water power and large supplies of pulp-wood.

Several large lumber companies, operating in the Adirondacks, content plate, it is said, buying forest lands in Canada, owing to the growing scarcity of lumber in that region, particularly along the Mohawk and Malone railways.

The C. P. R. is planting a tract of thirty acres at Maple Creek, Sask., with jack pine in accordance with its resolution to establish at various points along its roadbed belts of trees to be used for ties.

At the Fredericton Boom Company's annual sale of no-mark logs, of which so far some 70,000,000 feet have been rafted this season, spruce fetched \$13 per thousand; cedar, \$5.35; pine, \$7 a hemlock \$4.75. Last year's prices were \$14.30, \$6.90, \$12.15 and \$4.80 respectively.

The C. P. R. has sold all its timber holdings in the recently acquired Esquimalt and Nanaimo Railway belt on Vancouver Island to the MacLaren Timber Co., who already operate large mills near Vancouver. The price is said to be over \$3,000,000, or more than was paid originally for both railroad and land.

Under the new convention between Britain and Japan, under which Canada is now included, the Japanese custom tariff is materially reduced. Among items affecting the paper trades are the following: On printing paper, the duty is 1.168 yen, (a yen is about equal to 100 in our currency), per 100 catties (a catty is equal to 1.32277 English pounds); vellum paper, 10 per cent.; printing paper weighing not more than 24 pounds per ream, and measuring not less than 11 square inches per sheet, 0.800 yen per 100 catties; all other kinds of printing paper

163 yen per 100 kins; all other kinds of paper, including pasteboard, 10 per cent. C. Gilbert Rogers, of the Punjab District Presidency, who holds the office of Deputy Conservator of Forests in the Imperial Forest Service of India, has been visiting Vancouver during the past few days. He is one of the best judges of standing timber in the world, and is understood to be compiling a work on the timber supply of the world, which will present in due time to his Government.

A boom of logs, embracing seventy "swifters," containing 3,500,000 feet of lumber, worth over \$300,000, gathered from various logging camps—the biggest boom ever got together on the Pacific coast—was the imposing sight that greeted residents round English Bay recently, says the Vancouver "World." Many people went to the bay to look at the monster boom, where it is ready to be divided up and sent to its various consignees. It was something to have looked at. It was assigned to the Canadian Pacific Lumber Company, Port Moody; Robertson & Hackett, False Creek; Cook & Tait, False Creek; Vancouver Lumber Company, and J. S. Emerson.

The Canadian Pacific Sulphite Pulp Company, Limited, of which Mr. J. M. McKinnon is the local representative, is taking steps for the immediate development of the company's enterprise at Swanson Bay, on the northern coast of British Columbia. This will be at first the principal location of the company's operations, says the Vancouver "News-Advertiser." Part of the necessary equipment has been already ordered, and there will be no delay in completing it. Besides an up-to-date logging outfit, a portable sawmill will be sent up. There is a large supply of pulp timber at Swanson Bay. E. E. Sawyer, C.E., of London, chairman of the company, is now on his way to British Columbia. The board of directors is composed of E. E. Sawyer, chairman; Lieut.-Col. W. A. Mellin, M. A. Sands and John McEwen. The operations of this company will be watched with interest, it being

the first to undertake the manufacture of woodpulp in British Columbia.



THE LITHOGRAPHERS' STRIKE.

Ontario Lithographers are not affected by the widespread strike of employees for an eight-hour day, but in Montreal the local branch of the Lithographers International Protective and Benefit Association of the United States and Canada began the fight on the 9th inst. Fifty-four hours constitute the present week's work. The men are fighting for a reduction of hours, not for increased wages, though they point to the advanced cost of living. The employers say they cannot concede an eight-hour day under any circumstances, and will make a strong fight for the open shop.

The brunt of the battle is in New York, which has over seventy lithographic shops and about 4,000 employees, members of the union. In several other places the employers are said to have yielded to the men's demands. The men refuse to arbitrate, as has been suggested in some quarters, on the alleged ground that the agreement of two years ago, involving that means of settling difficulties, has now expired. Many paper houses have contracts for supplying large quantities of lithographic material and the existing difficulties will seriously interfere with their business.



FOREST FIRES.

August will be a memorable month for the number of forest fires in various parts of the Dominion, owing to the continued hot weather allied with absence of rain. There are several morals which settlers, campers and other careless people should take to heart, but we will not reiterate them.

Steps are being taken in the Kootenay district of British Columbia to protect the forest reserves. Several settlers have been arrested for carelessness in extinguishing fires made for clearing purposes.

In New Brunswick a fire started at Westfield on the C. P. R. and did some damage before it was extinguished. Near Sussex and in Westmoreland county, also, fires have threatened farm buildings. It is quite probable that the amount of loss incurred by such forest fires in these districts alone would more than pay for an efficient and complete fire rauging service for the whole Province.

Lumbermen fear the loss from forest fires around the Soo will be very heavy. Dense smoke was seen issuing from both sides of the river in the early part of the month. Owing to the very dry weather the fires spread with exceeding rapidity. On the Michigan side half of the town of Wellsburg was burned, as well as the business portion of Eckerman.

Forest fires have also raged in several parts of the Temiskaming country, between Temagami and Englehart. Around Cobalt fears have been expressed for the fate of the town itself. The country has been dry as tinder. A protracted drought has prevailed, with thousands of prospectors in the woods, many of whom are careless. Further north settlers are making clearings, and they, too, are frequently indifferent to fire possibilities. At Gillies' Depot the men have been fighting to save the buildings.

On August 5th upwards of forty square miles of forest reserves of the Columbia and Western Railway belt, between Cascade and Bull Dog Tunnel, were reported on fire, and it is estimated that hundreds of thousands of dollars' worth of timber have been destroyed. At Farron the station buildings, roundhouse, water tanks, the company boarding houses, etc., were burned with a loss of \$10,000. The entire available railway force from Cascade to Robson was working night and day to save the trestles. Fires in the vicinity of Seymour Creek have caused anxiety to holders of timber limits. Much destruction has been already done. Many camps and much timber situate on Burrard Inlet, between Vancouver and Barnet, have been

burned. The International Logging Co. lost probably a million and a half feet.

Sportsmen and others returning from the Lake St. John country, state that forest fires in that section have been the worst in years, and that the country generally has suffered greatly from the protracted drought. It has been many weeks since a rain of any consequence has fallen, the result being that the ground is as dry as tinder and great cracks have opened up in the sandy soil. The shores about Lake St. John are afire in hundreds of places, and the smoke arising from the burning timber is such as to fill the houses and make it almost impossible to breathe.



A HANDSOME SOUVENIR.

The Pulp and Paper Magazine wishes to thank the J. L. Morrison Co., King street west, Toronto, for a handsome souvenir of Karl Krause, Leipzig, Germany, the world's renowned paper making machinery firm, for which they are the Canadian agents. The souvenir is in the form of a very large and beautifully bound volume, finely illustrated containing a history of the firm during their first fifty years of business life, also a sketch of the life of its illustrious founder, Karl Krause. Large and finely illustrated cuts of the plant adorn the pages. The work was issued at the time of the Karl Krause celebration a short time ago, when the members of the company and the employees, number of hundreds, did honor to the memory of Karl Krause. The book shows the original great plant, and also its condition after the big fire in 1904. The plant has since been restored.

It may be also mentioned here in connection with the J. L. Morrison Co. that they represent many other strong paper making machinery for the paper trade. These include the Oswego Machine Works, makers of the reliable Seymour "Holyoke" paper cutters, and the K. Press Company, New York, makers of all kinds of slitting and re-winding machinery. All classes of this machinery are kept in stock.

Remedies For "Breaks."

The most experienced machine tenders are puzzled by their failure to avoid the troubles caused by the tearing of the web after leaving the wire on coucher and presses and dryers.

Several writers in the "Papier Zeitung" and "Paper Trade Journal" have expressed their interesting and instructive opinions on this important subject. Albert Komp sums up the principal causes of the tearing of the sheet as follows:

The beater, the suction box, the wire and table, the slices, the coucher and press rolls and felts—also in uncleanliness present in resinous and fatty substances, and frequently in the composition and quality of the pulp, and not less in the faulty beating, sizing and bleaching process. One of the most important features of the paper mill is the condition of the beater; the most perfect outfit cannot counteract the consequences of an improper management of the beating process.

The thinner the paper the more it is apt to stick to the presses. This known fact is observable in the making of tissue, silk or cigarette paper. The tissue stock requires prolonged and very careful beating into a fine and uniform fibre collection, fit to resist friction and pressure as well as a heavier sheet. In most cases the sticking of a paper sheet to the presses is caused by insufficient action of water from the sheet; the unclean condition of the top coucher also causes breaks.

To make a thin and strong sheet in which the pulp is uniformly divided (never appearing in clouds intersected with pin holes), the beating or refining must be performed by the action of rubbing or kneading, never with sharp knives, but always with somewhat worn or dull knives; the fibres must be split and torn (not cut) into lengthy, extremely fine ultimately divided fibrilles. In later days the tearing trouble is combated with stone rolls, also with polished wood rolls, and it is claimed

that by their use an important forward step has been gained. It seems reasonable to say that the air admitted into the pores of the roll during the treatment of the sheet will counteract the adhesion of the sheet to the roll. Scrapers, one of hard rubber, the other of end wood, are recommended. Fine ground wood paper, owing to the contents of resin in the lignin part, requires a metal scraper or doctor.

Irregularly beaten and unevenly distributed stuff, showing cloudy gatherings of fibres on the wire, therein containing unequal parts of water in spots, will naturally show increased adhesion to the roll, and diminished cohesion and strength, being unable to resist the tearing notwithstanding the best condition of coucher, felts and presses. A worn-off felt loses its action to lift the wet sheet from the press; this is also the case when the felt is closed, and thus out of condition to serve for straining or filtering.

The tearing trouble exists in the largest extent with sulphite and ground wood fibres. Additional causes for tearing are observed in the dripping of evaporated dampness from the ceiling, faultily-fitted scrapers on the wet press, too much lubricating oil on the deckle strap wheel and journals finding its way into the stuff; also impurities in the stuff in the form of condensed foaming matter derived from sand traps, strainers or from pipe conduits and from the dropping of gathered froth slime into the stuff.

A liberal sizing with rosin, starch, viscose or glue will increase the chances of tearing quite frequently. It is advisable to use rosin soap that is soluble in cold water, carefully strained, and in all cases to apply the cold solution liberally diluted with cold or lukewarm water. Fine tissues and silk papers should only receive a moderate proportion of sizing material, the pulp should be properly beaten as described, and

the speed of the wire should be as slow as required to prevent tearing.

A number of causes for tearing may not be readily observable, but in many cases they can be discovered by examining the point of a torn sheet that has adhered to the scraper.

The discovery of the cause and means of prevention is more difficult in ground wood papers containing small additions of sulphite; also in pure sulphite than in normal rag stock. An unusual amount of resinous matter in the lignin part of ground wood will cause sticking; insufficient beating of sulphite also causes trouble.

When we discover why the paper clings to the presses the prevention is not difficult, but an immediate cure is seldom found; the use of the phenomenal alum and other faith cures of short duration not excepted.

The foaming matter appearing between stuff chest and breast roll will accumulate, especially in the screens, and will find an outlet occasionally, but scarcely noticeable, in a more or less condensed form, and will thus trouble the machine tender when he cannot prevent the making of "broken" in place of paper. Again, the fundamental condition for avoiding the sticking of the web to the presses, etc., consists in the proper treatment of the raw material during grinding, boiling or digesting, mixing, beating, sizing, washing and bleaching; also frequently upon the exact adjustment of the speed. While coarse wood papers may run 550 feet or more per minute, the finer grades should not be expected to make more than half that speed.

A "Practical Foreman" in the German paper says:

Silk Paper.—When we started to make silk paper with bleached sulphite we had to constantly combat the sticking of the thin web to the presses, especially when we used unsized stuff. An addition of 1 to 2 per cent. of alum to the stuff in the beater prevented the trouble and we were allowed to increase the speed.

Tissue Silk Stuff.—In an English mill the making of unbleached sulphite stuff paper of 18 grammes per square meter would not go without sticking. The web would cling owing to the viscosity of the stuff, caused by the rosin in the sulphite, and finally the mill directors were ready to abandon the work. Then I was called to apply my expert knowledge. After examining the plant I ordered that the stuff be cooked separately and bleached. By thus extracting the rosin the work could be resumed with success.

Sulphate Kraft Papier.—After running a whole week thin scaling without interruption, on the following Monday the web would constantly cling to the presses. After searching all over the mill I found that the transmission journals above the stuff chests had been carelessly lubricated and the oil had dripped into the stuff. I used the injured contents of the chests for making half stuff on a wet press, and after thorough cleansing the operation could be satisfactorily resumed.

Cigarette Paper.—During several holidays the beater roll we used had been supplied with new knives, still the stuff would stick to coucher and presses. I resumed the beating in old beaters with dull knives, and the sticking ended. After the new knives were worn out through use on other stuff they were also answer for cigarette paper.

Roll Printing Paper.—After certain improvements had been perfected on paper machine the sheet would constantly stick to the first press; even the applied remedy had failed when I made a last attempt by weighting the web on the coucher in the old manner, and everything went well. This shows that the best couch rolls need careful attention.

Thin Wrapping from Brown Wood Second-class Cellstuff.—The paper was constantly sticking to the first press, I examined the couch and found that it required to be adjusted a little backward. Having so adjusted it, the paper was no longer crumpled and began to run well.

Lightweight Print.—When the sheet as constantly sticking to the press I observed that the rotary knot catcher, owing to its irregular motion, influenced the stuff on the wire in such a manner that the stuff moved in a whirling way against the slices, and then in place of three I found but two of the latter. After adding the missing stick and regulating the rotation of the strainer the stuff would run on the wire in a quiet and regular manner; consequently the pulp would be freed from water in an even way and resulted in a good sheet. This shows the consequence of even a slight attention.

Sugar Paper.—It was found impossible to make a sheet of a prescribed weight and thickness. The web got clogged and stuck to the wet press. By altering the inlet of the stuff, adding some cotton stuff and gypsum material, succeeded in increasing the action of the suction boxes. Rumpling and sticking disappeared.

Brown Ground Wood Board of 800 rains per Square Metre, or about 28 ounces to 40 by 40 Square Inches.—When the sheet rumpled between the presses I attached an upper felt, used aarser ground stuff and could do well with increased speed.

Post Paper.—The web clinging to the first press, I examined the rosin sizing and found that it had not been sufficiently diluted with water. In order to facilitate the carrying of the dissolved sap the head beaterman had kindly allowed the use of an undiluted solution. After re-establishing the former application of well-diluted size, the paper ran without sticking to the presses. The boiled expensive material left in the nest could only be used gradually as half-stuff in very small proportions.

Poster Paper.—To prevent sticking I weakened the pulp considerably, thereby forming an even sheet that was fit to run and form well.

Blotting Paper.—In the making of blotting, and also of Chinese absorbing paper, it happens frequently that not all

the stuff particles are well worked on the coucher.

This evil is readily cured by applying an additional strong jet of water. By replacing the first iron press roll by one of mahogany I had no further trouble in making light or thick absorbing.

Illustration Print.—Not suspecting that the chloride of lime used for bleaching leaf wood sulphite had been imperfectly dissolved, we started to make fine print paper. The stuff, however, could not be washed clean enough, and, although I added about 50 per cent. of best cotton stock that had been bleached with only a small part of chlorine, the web would cling to the first press. I experienced a similar case with bleached sulphite silk paper. The pulp was entirely spoiled, and proved unfit for use, even in small additions to silk paper stock.

Imitation Parchment.—The stuff constantly sticking to the first press, I examined both suction boxes, and found that the top had an irregular surface. After refitting the upper part of the boxes the rarified air could resume its function, the rumpling and sticking ceased, and the paper went on without trouble.

Fast Runner Work.—While the Four-drainer was making 470 feet per minute, it happened one day during the slowest run that the web would stick at the first press. Examining a newly draw-on felt, I found two faults: the felt formed water bubbles, and proved to have been delivered by the maker in too fatty a condition. The evil was cured by thorough washing and applying spiral felt rolls. First washing of the wet felts for fast runners is always recommended. On another occasion I had a felt that was too close for allowing water to pass through it, consequently the water would constantly stick to the first press. After inserting a felt of the normal quality the trouble ended.

Wrapping Paper.—Occasional splitting at the first press caused an examination of the tear, and I discovered the presence of strange coarse wood fibres. I investigated around and about the

grinders and beaters. The stones were correctly sharpened and the sorting tables in good order; then I ascribed the trouble to the carelessness of the beaterman in handling the paddles; these latter were examined and repaired, yet the trouble went on. The puzzle was solved quite unexpectedly. The walls of the beater had assumed a dark shade, and it was found that the roller knife wedges had been ground off into the splints that were causing the breaks as discovered in the tear of the sheet. It

was again shown that the beater formed an integral part of the mill, deserving the most careful attention. From that time a separate roll and ground plates were constantly kept on hand ready for use.

Roll Printing Paper.—The cause of tearing was found to be owing to the coarse condition of the wire seams. Irregularities also appeared on the winders, owing to the same cause. The wire with a suitable seam excluded further trouble.



German Rag Industry

Mr. Leute, in the American consular office at Mannheim, writes as follows on the industry of rags and cuttings, which is among the most important of that district:

Though the firms in this branch exporting to the United States are small, their aggregate exportation is large. The Mannheim consular district is especially a chemical, color and leather-producing one. These articles together form about two-thirds of the entire exports to the United States. But of the many other articles, only one is of more importance in point of export value than that of rags and cuttings. This export amounts to about \$350,000 annually to the United States alone, while large quantities are shipped to other countries, England being, perhaps, the largest buyer among them. During 1905, 18,345 tons of rags left Mannheim and 6,616 tons arrived, which shows the importance of the rag industry.

The industry is carried on principally by firms at Mannheim and Karlsruhe. Branch factories are situated in different parts of the State. As the labor employed is drawn mainly from the peasant class, it is obvious that the factory must be within easy reach of a number of small country towns. The two largest factories are well equipped, that at Karlsruhe being especially modern. It is a double-winged, four-storey building,

fitted with elevators, electric light, electric presses, shredding machines, and containing storerooms, the offices, dining, locker and bath rooms for the employees, disinfecting room, etc. Apart from these buildings is another where the woolen rags are chemically treated to decompose all vegetable matter. The principal factory at Mannheim is small, but is also well equipped, having electric light, steam heating, etc. Both factories have railway sidings in or alongside their buildings to allow direct loading and unloading from the railway cars, and also have generating plants for their supply of electricity.

The number of persons employed in the branch in this district is perhaps 1,500. The sorters, who are recruited mostly from the peasant class, are exclusively women and girls. Local law requires them to be at least fifteen years of age. Their work consists mainly in sorting the rags, cuttings, strings, etc. according to color and kind, and in moving every particle of foreign matter such as leather, rubber, cardboard, etc. The learners earn about 35 cents a day. After becoming more skilled they are put on piecework and earn 50 to 90 cents a day. The boys are employed in feeding the presses, and their wages range from 35 to 50 cents. The men do the hauling of the bales, and earn about 50 cents to \$1 a day. Neither the labor

men or boys is skilled, the foreman alone being versed, as a rule, as to quality and kind of rags.

As sorting is not over lucrative or remunerative, unless the sorter works very diligently, some difficulty has been experienced of late in getting enough help among the German girls and women. They usually prefer working in less dusty factories and farther in town. As a result, outside help has to be secured. This has come from Galicia. Upward of 100 Galician girls and women (also a few boys) have been imported by one firm in this district, and with good results, it is claimed. These people are secured through an employment agency in Berlin. The importing firm must cover their travelling expenses, board and lodging, which are then deducted from the wages in small instalments. Only a few of these immigrants understand German, and many cannot even read or write their mother tongue. Local law now requires that such immigrants must each have his or her own bed, and some difficulty has been met with in supplying adequate lodgings.

The uses to which the rags are put after going through the sorting, being baled and shipped from the factory, are varied. Old rags from the rag picker are used for making the cheaper grades of packing paper, etc. The new cotton cuttings come from corset, shoe and doll factories, tailors' shops, dressmaking establishments, etc., and are, in part, redden and spun into cotton sewing thread, or to some extent woven into artificial cotton cloth, and are used in part for making better grades of paper. They are sorted according to color, rendering a special dyeing process in some cases unnecessary. The linen cuttings are used for the finer grades of writing paper, etc.

Woolen rags are treated with acids to decompose all vegetable matter, are then redden, spun and woven into cloth. This cloth is used for the cheaper grades of dress goods and suitings. Rope, twine, baggings, etc., are used principally for paper making, the different

kinds, as hemp, manilla, flax, etc., being separated. A fact which seems surprising at first is to be told, on confronting a bale of great, thick ropes, that they are used for making cigarette paper.

The question of utilizing the waste products has not yet been fully solved. The rubber has almost no value, commercially. The small pieces of leather found among the cuttings from shoe factories are used, to some extent, in making leather for upholstering purposes. Until recently the dust and fuzz which falls through the sorters' tables and that drawn out of the sorting rooms through exhaust pipes had to be thrown away as worthless. A process has, however, been recently invented whereby it can be made into roofing paper, and it is now carefully collected. The utilization of these waste products would seem to be a fairly rich field for invention.



WESTERN FOREST RESERVES ASSURED.

The Hon. Frank Oliver's bill to provide for a number of forest reserves in the West has passed its third reading in the Senate.

Hon. Mr. Loughheed said the forests were being diminished so rapidly by fire and the axe that reforestation was fast becoming a necessity. He thought it would be a good idea to make it a condition of homesteading that the settler should plant a certain number of trees.

Hon. Mr. Scott said the policy of the Government now is to do everything possible to preserve the forests. The suggestion made by Mr. Loughheed was a good one, and he would be glad to lay it before the Government.

Sir Mackenzie Bowell endorsed all that had been said of forest destruction, and expressed approval of the proposal to establish reserves of timber.

Senator Owens said that even if the existing timber could be preserved there would be a great increase in Canada's lumber requirements. More lumber had been destroyed by fires than by lumbermen.

J. L. Morrison Co.'s New Building

The business of the J. L. Morrison Co., Toronto, printers, bookbinders and handlers of all kinds of paper-mill machinery, has grown so rapidly in recent years that it is quite likely that extensions to their premises would have been



Mr. James Brown.

necessary even without the contingency of the big fire of two years ago. Be that as it may, the business, which is owned and managed by James Brown, is now established in a very commodious five-storey building on the south side of King Street, near Spadina Avenue, which adds one more to the substantial warehouses erected during recent years in that district. The lot on which the building has been built measures 50 by 127 feet, and the whole of this space is covered by the structure. Throughout, the flooring of the building consists of a double thickness of Southern pine and hardwood five inches thick; the walls are of such strength that extra storeys can be added when required. The boiler-house for the heating of the building is outside the main building and separated from it by a fire-proof wall. What strikes the visitor most forcibly on entering the new building is roominess and splendid lighting facilities.

The offices and showroom are on the ground floor, while in the basement are located the machine shop and storeroom. The offices and showroom are finished in quarter-cut oak, with furnishings in keeping. Both the general and private offices are models of what an up-to-date office should be. The labor-saving devices are installed, with the result that there is no litter lying about and no confusion.

In the showroom there is an excellent stock of the machines handled by the company. These embrace all machines required by bookbinders, paper box makers, lithographers, envelope makers and printers, what the company believe to be the very best machines in the several lines. By means of a travelling motor any one of them can be put in actual operation in quick order, so that prospective buyers can see just how it performs its work.

In the basement is located the machine shop, fitted up with all the app

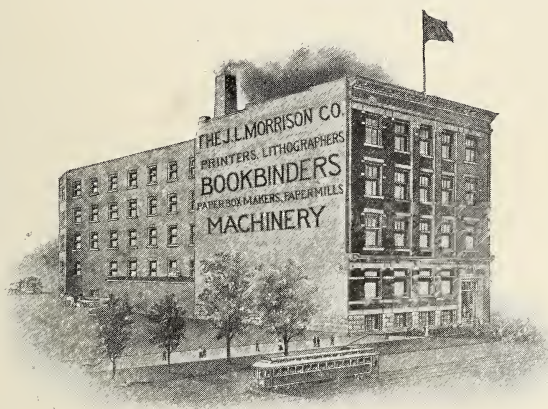


Mr. David Brown.

ances necessary for the quick assembling of new machines, testing, etc. Here, also, repairing of all kinds is undertaken. Expert mechanics are employed, who are able to turn out the very best classes of work.

Shipping facilities are excellent. A travelling crane, capable of carrying 3½ tons, lifts the machine direct from the cars in the yard and carries them to

Mr. Brown was born in Glasgow, Scot., about thirty years ago. After leaving school he entered a large printing establishment in Toronto, where he gained an admirable knowledge of his



The J. L. Morrison & Co. Building.

by part of the ground floor or lowers them into the basement, while a goods elevator attends to the other requirements of the business on the upper floors.

present business, a knowledge which has steadily brought him to the fore in commercial circles. Mr. David Brown, his popular brother, assists in the management.



A View on Forest Reserves

Arthur Harvey Smith, one of the editors of "Rod and Gun in Canada," has been on a visit to British Columbia with a view to seeing first-hand what attention is being paid in that great Province to the preservation of its wonderful assets in fish, game and forests, and thus states his impressions:

In the matter of fish, game and forest reservations the Dominion Government has set a splendid example to the Provinces, and in the Canadian National Park, partly in Alberta and partly in British Columbia, has founded the largest national park in the world, the area being about one-third larger than the famous Yellowstone National Park in the States. What is now needed is for the Government to go a step further and organize an efficient protective

police, for the stories of the slaughter of big game in the park cannot be all baseless, and the present system appears to be largely a failure. Further, the Dominion Government as owners of the lands in Alberta and Saskatchewan, have set aside over 14,000 square miles in various portions of the Provinces as provincial preserves. If thorough protection is given throughout these areas the future of the big game of Canada is assured, but the protection must be efficient.

Next to the Dominion comes the great Province of Ontario, which has set aside seven great forest reserves, four of which—the Algonquin National Park, the Temagami Reservation, the Mississagua Reservation and the Nepigon Reservation—the latter containing what is believed

to be the finest trout stream in the world—have gained international fame as the most wonderful of Nature's playgrounds.

Then Quebec Laurentides National Park, to the north of Quebec City, containing some fine salmon streams, and the Gaspesian Reserve, which includes the greater portion of the Gaspé Peninsula, and will protect the head waters of seven fine salmon rivers. It may be mentioned that the bill providing for the latter passed the Provincial House a few weeks ago without a single dissentient voice, so thoroughly convinced were the members from previous experience with their first park of the absolute necessity of the second unless Nature was allowed to be sadly interfered with and serious sufferings follow. New Brunswick, Nova Scotia, and even Prince Edward Island are moving in the same direction, while the great Province of British Columbia remains without such a reserve, although its area, and its wonderful diversity, its richness in variety of big game, and its great fishing industries all render such steps most desirable in the interests of the people and in those of the future of the Province. The opportunity is still with the Government and the people, but it will pass away in a few years unless a move is made in time.

The game laws are far too liberal in British Columbia, and afford too many loopholes. The season is too long and the amount of game allowed for each license is too great. In Ontario the open season is one month north of the main line of the C.P.R. and fourteen days south, and the bag allowed is one moose and two deer and two caribou; in Quebec they are more liberal both as to season and bag, the season lasting three months and the bag allowed being more than is reasonable for any sportsman. New Brunswick is likewise liberal; and Manitoba and the new Provinces compare well.

In the Quebec forest reserves only the ripe timber and no more than the annual growth is permitted to be cut, the head waters of rivers are preserved, and the cover for the game remains. The sub-

jects are so intertwined that it is impossible to separate them, and in any way of the kind forest preservation goes first and the others follow, although needless restrictions are necessary if Canadian fish and game are to remain what they are to-day—the very finest in the world.

British Columbia has organized game protection for one year, and has thus made a good beginning. The example of the other Provinces quoted should stimulate both Government and people to take further steps in the same direction. There are numerous loopholes in the present Act that require to be stopped if really effective work is to be accomplished.



WEST AUSTRALIA TIMBER.

The total wooded area of Western Australia is estimated at 98,000,000 acres, and the extent of merchantable timber has been reckoned to be, approximately, as follows: Jarrah, mainly white black butt and red gum interspersed, 8,000,000 acres; Karrie, 1,200,000 acres; Tuart, 200,000 acres; Wandoo white gum and allied timbers, 7,000,000 acres; Yorgum, yate, sandal wood and jam wood, 4,000,000 acres; total, 20,400,000 acres. This represents a forest area of merchantable timber four times greater than the whole area of Wales.

The total value of timber exported from Western Australia for the ten years ended 1904 was £4,800,000. The uses to which this timber is put include railway construction, railway sleepers, marine and engineering works of all kinds and building construction, underground use and where in contact with wind and water. Jarrah has been employed for railway waggon construction by English railways and Western Australian timber companies with satisfactory results; is very largely used for street paving blocks; is placed by Lloyds in the third highest class for shipbuilding purposes; takes the chief place in local shipbuilders' yards; and for telegraph and

telephone poles and signal posts is found exceedingly suitable and durable; while its miscellaneous uses in the State generally for almost every purpose and requirement of all the industries are innumerable.



SUIT AGAINST THE E. B. EDDY ESTATE.

Wyllen and Duclos, acting for the Provincial Government of Quebec, have entered action for \$254,535 against the E. B. Eddy Company, Limited, for succession duties in the estate of the late E. B. Butler Eddy. The executors of the E. B. Eddy estate filed a statement with the Collector of Provincial Revenue at Montreal to the effect that after the debts of the late E. B. Eddy had been paid and bequests carried out there remained nothing, that the estate was worthless. But the Department declined to accept the statement, and after several attempts to come to terms the Government has finally taken legal action.



PAPER FOR BANK NOTES.

The United States flag flies over the "Government mill," owned by the Crane family at Dalton, Mass., because at the paper for the United States greenbacks is made there. It is one of a group of mills in which the Cranes have made paper for more than a century. The founder was Zenas Crane. Before he could get the first mill started he had to have a large quantity of rags. But rags were scarcer in those days than now. The Italian had not then arrived, the junk shop was unknown, and, although the rag buyer passed through the streets of Boston once a week, he had not yet appeared in the western part of the State. This resulted in an appeal to the people, based on high economic and patriotic grounds. Handbills appeared with the headlines in large type: "Americans, encourage your own

manufactures, and they will improve! Ladies, save your rags!"

They were carried to all the homes and shops in Berkshire and adjoining counties, urging "every woman who has the good of her country and the interests of her family at heart" to save her rags and send them to the new factory or to the nearest storekeeper, "and a generous price will be paid." When the mill was ready the rags were there in abundance, and operations at once commenced. The working force consisted of four men, two girls and a small boy, with Zenas Crane as superintendent and chief proprietor. The paper was made in hand moulds, and the output was 100 pounds a day. To-day the output is many tons of the finest bank note paper.—World's Work.



BLUE PAPER.

"A woman," said a papermaker, "invented blue paper. It was by accident that she did it, though. Before her time all paper was white.

"The wife of Wm. Eastes, one of the leading papermakers of England in the eighteenth century, in passing through the paper plant one day dropped a big blue bag into a vat of pulp. Eastes was a stern man, and so, since no one had seen the accident, Mrs. Eastes decided to say nothing about it.

"The paper in the vat, which should have been white, came out blue. The workmen were mystified, Eastes enraged, while Mrs. Eastes kept quiet. The upshot was that the paper was sent to London, marked 'damaged,' to be sold for whatever it would bring.

"The selling agent in London was shrewd. He saw that this blue-tinted paper was attractive. He declared it to be a wonderful new invention, and he sold it off like hot cakes at double the white paper's price.

"Eastes soon received an order for more of the blue paper—an order that he and his men wasted several days in trying vainly to fill.

"Then Mrs. Eastes came forward and told the story of the blue cloth bag. There was no difficulty after that in making the blue paper. The price of his paper remained very high, Eastes having a monopoly in making it."



UNITED STATES PAPER TRADE.

Both the exports and imports of paper of the United States increased during the year ended June 30th. Increase in exports was chiefly in printing paper and miscellaneous goods, while lithograph labels and prints were mainly responsible for the increased imports. The export figures follow:—

	1905.	1906.
United Kingdom ..	\$2,259,255	\$2,564,317
Belgium	71,682	99,986
France	51,689	43,945
Germany	175,267	257,436
Italy	17,778	15,768
Netherlands	89,967	87,126
Other Europe	87,533	77,431
British North America	2,031,565	2,226,750
Central American States and British Honduras	141,187	210,045
Mexico	554,629	591,899
Cuba	375,005	429,760
Other West Indies and Bermuda ..	138,490	136,181
Argentina	254,882	337,548
Brazil	68,042	89,909
Chile	226,254	231,903
Colombia	34,975	27,113
Venezuela	43,569	39,465
Other South America	114,670	110,363
Chinese Empire ...	25,810	80,066
British East Indies.	43,161	80,803
Japan	258,348	614,516
British Australasia.	849,404	904,362
Philippine Islands.	143,771	130,184
Other Asia and Oceania	20,930	33,181
British Africa	132,571	104,873
All other Africa ...	7,523	10,723
Other countries ...	131	412
Total	\$8,238,088	\$9,536,065

NATIONAL PAPER TRADE ASSOCIATION.

The second semi-annual meeting of the above Association was held in Minneapolis during the last week of the month, Col. Wright, President of the Northwestern Paper Dealers' Association, delivering the address of welcome. The programme was an admirable mixture of business and pleasure. President Linde dwelt on the success of the organization in bringing about harmonious relations among United States paper merchants, but modestly pointed out that work so far had been purely preliminary. Current difficulties between jobber and manufacturer were referred to, and the idea expressed that if they would come together the former would see that the jobber is not so much at fault as sometimes supposed.



CANADIAN FORESTRY ASSOCIATION

The forestry convention to be held in Vancouver in September promises to be the most notable gathering ever held in British Columbia. The Governors General, Lord Grey; Sir Wilfrid Laurier, the Governors of various Provinces, and representatives of the different coast States are expected to be present. The question of giving a fitting reception to these notable delegates is already being discussed. The British Columbia Government has granted the sum of \$1,000 towards the cost of the reception and entertainment of the members of the Forestry Association, and a large number of prominent men from Eastern Canada who are expected to visit British Columbia.



Boston mills are running fairly well. Some book mills are reported to be securing new business at concessions, though this is wondered at. Deliveries of many have been slow. Writing papers are in moderate demand, and values firm. News is easy.

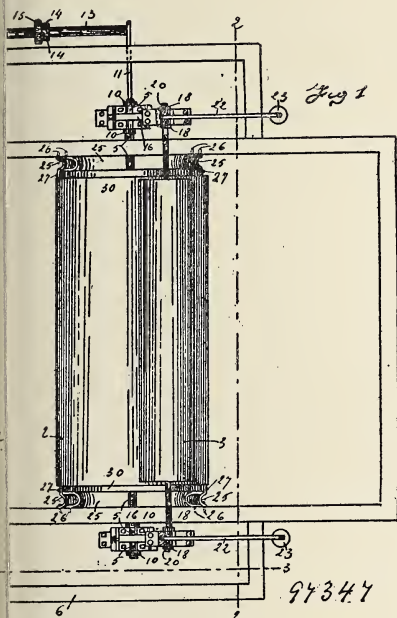
Recent Canadian Patents

Of Interest to Pulp and Paper Manufacturers Patented Recently.

No. 97,347.—Cylinder Paper Machine.

Cylindre de machine à papier.

By R. Kenneth, Troy, New York, U. S. A., 6th February, 1906; 6 years. Filed 13th December, 1905. Receipt No. 130,951.



Claim.—1. In a cylinder paper machine the combination with the cylinder, of rockable bearing supports for the cylinder, of means for rocking said supports.

In a cylinder paper machine, the combination with the cylinder, of a pair of vibratory arms adjacent to the opposite ends of the cylinder, cylinder bearings swivelled in said vibratory arms respectively, and means for imparting to said arms vibrating movements.

In a cylinder paper machine, the combination with the cylinder and couch roll, of a pair of vibratory arms adjacent to the opposite ends of the cylinder, cylinder bearings swivelled in said vibratory arms respectively, bearing for the couch roll fixed respectively to the cylinder

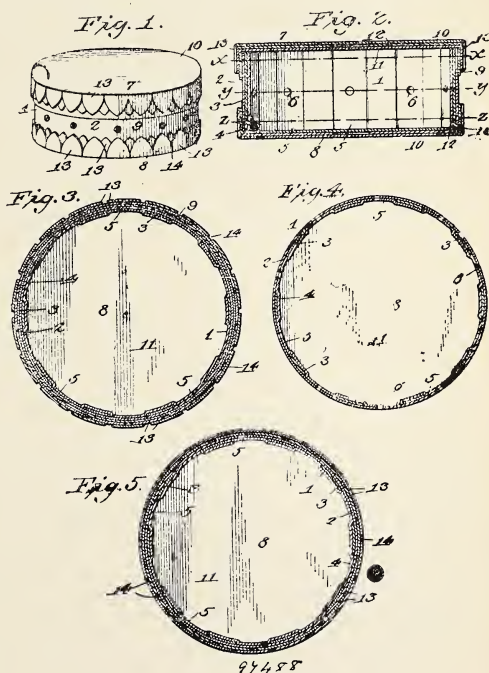
bearings, and means for imparting to said arms vibrating movements.

4. In a cylinder paper machine, the combination with the vat, the cylinder, and means for shaking the cylinder, of a hoop mounted upon an end portion of the cylinder of reduced diameter, said hoop being adapted to permit the rotation of the cylinder therewithin, springs interposed between said hoop and the neighboring side wall of the vat, and a flexible diaphragm connecting said hoop with said side wall of the vat.

No. 97,488.—Paper Box.

Boîte à papier.

James Francis Donley, Buffalo, New York, U. S. A., 13th February, 1906; 6 years. Filed 30th December, 1905. Receipt No. 131,453.



Claim.—1. A paper box or receptacle having its body formed of two layers of paper, and vertical reinforcing strips interposed between said layers and being

separated from each other, said two layers of paper being glued to said reinforcing strips and to each other at points between said reinforcing strips.

2. A paper box or receptacle having its body formed of two layers of paper and vertical reinforcing strips interposed between said layers and being separated from each other, the inner layer being glued to said reinforcing strips and to the outer layer between said reinforcing strips, forming vertical grooves on the inner side of the body which serve as air spaces.

3. A cylindrical receptacle having its body portion formed from a straight blank, comprising in united form two layers of paper with vertical reinforcing strips separated from each other, said blank being curved into cylindrical shape and having its ends connected and a suitable bottom for said cylindrical body portion.

4. A paper box or receptacle having its body formed of a plurality of layers and vertical reinforcing strips separated from each other and glued to said layers, said layers being glued together between said reinforcing strips to form vertical air ducts on the inner surface of the wall forming the body.

5. A cylindrical paper box or receptacle having vertical grooves on the inner surface of its side walls and air apertures formed in said side walls and communicating with said grooves.

6. A cylindrical paper box or receptacle having its body formed of two layers of paper and vertical reinforcing strips separated from each other and glued to said layers, said layers being glued together between said reinforcing strips to form vertical air ducts on the inner surface of the wall forming the box, and air apertures formed in said wall and communicating with said air ducts.

7. A box having side walls and a bottom comprising an inner, an outer and an intermediate layer, the inner and outer layers being each provided with upturned scalloped marginal portions cemented together and arranged that each

scallop of the outer layer overlaps a scallop of the inner layer, said upturned scallops being cemented together to the said side walls.

8. A box or receptacle comprising cylindrical body and a bottom having an inner and an outer layer, each provided with upturned marginal scallops so arranged that each scallop of the outer layer overlaps two scallops of the inner layer, said upturned scallops being cemented together and to the cylindrical body of the box.

9. A box or receptacle comprising cylindrical body and a bottom having an inner, an outer and an intermediate perforated layer, said inner and outer layer being each provided with upturned marginal scallops so arranged that each scallop of the outer layer overlaps two scallops of the inner layer, the three layers being cemented together and the upturned scallops being cemented to the body of the box.

10. A box comprising side walls and a bottom having an outer and an inner layer each provided with upturned scallops at their marginal portion so arranged that each scallop of the outer layer overlaps two scallops of the inner layer.

11. A box or receptacle comprising cylindrical body and a bottom having an inner, an outer and an intermediate layer cemented together, said intermediate layer having radial slots, and said inner and outer layers being each provided with upturned marginal scallops so arranged that each scallop of the outer layer overlaps two scallops of the inner layer, said upturned scallops being cemented to the body of the box.

12. A cover for a cylindrical box or receptacle comprising an outer and an inner layer having the marginal portion thereof scalloped and turned down, said scallops being cemented together and arranged that each scallop of the outer layer overlaps two scallops of the inner layer, and a circular rim secured to scallops of the inner layer.

13. A cover for a cylindrical box or receptacle comprising an outer, an

and a slotted intermediate layer cemented together, said inner and outer layer having each downwardly bent marginal scallops so arranged that each scallop of the outer layer overlaps two scallops of the inner layer, and a circular rim secured to the scallops of the inner layer.

A cylindrical box or receptacle having a body formed of two layers and radial reinforcing strips cemented between said layers, and a bottom having its marginal portion scalloped and turned upward for cementation to the body of the box.

In a paper box or receptacle, a cover or end therefor comprising an annular rim, and an outer and an inner layer each provided with a scalloped marginal portion so arranged that the scallops of the outer layer overlap two scallops of the inner layer, said layers being cemented together and having the marginal portion thereof cemented to the annular rim.

In a paper box or receptacle, a cover or end therefor comprising an annular rim, an outer layer, an inner layer and an intermediate layer having portions thereof cut out to reduce the weight thereof and also to prevent warping of the cover or end.

In a paper box or receptacle, a cover or end therefor comprising an annular rim, an outer layer, an inner layer and an intermediate layer having radial slots, the whole being cemented together.

A cover or end for a receptacle, formed of an outer layer, an inner layer and an intermediate layer having portions thereof cut out.

N 97,513. Paper Bag Making Machine. Machine à faire les sacs de papier.

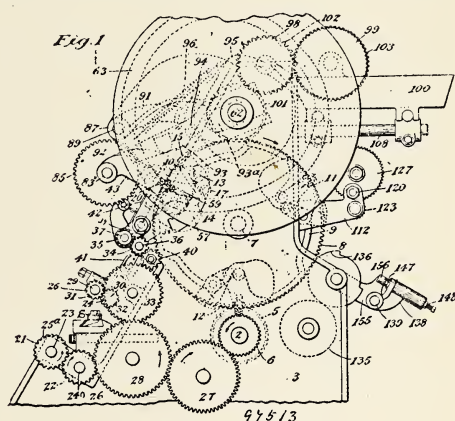
Charles F. Smith, Bridgeport, Connecticut, U. S. A., 13th February, 1906; 6 years. Filed 13 November, 1905. Receipt No. 130,061.

Claim.—I. The combination of a revolvable folding bed means for forming the diamond fold thereon, an integral combined breaker and ironer comprising

a pair of oppositely disposed downwardly reaching ears and means for moving said breakers and ironer toward and away from the folding bed, all combined and operating together, substantially as described.

2. In a breaker and ironer, the combination of a pair of oppositely disposed right and left ears, 90a, 90b, respectively, for turning inwardly the sides of the mouth of the bag blank, and one or more yieldable fingers, 90c, for flattening the diamond fold, all combined and operating together, substantially as described.

3. The combination with diamond folding means, including a revolvable folding bed, of an integral combined breaker and ironer comprising a reversed U-shaped



member, and means for moving said combined breaker and ironer in approximate parallelism with the folding bed.

4. The combination with diamond folding means, of the ironer 90, means to operate the ironer in substantially parallelism with the diamond fold, breaker ears 90a, 90b, and means to oscillate said ears on fixed trunnions, all combined and operating together, substantially as described.

5. The combination of a revolvable folding bed with rear flap folders comprising a pair of oppositely disposed members each pivotally mounted for rotation on a pivot whose axis forms an acute angle with the face of the revolvable folding bed, and means for rotating the flap folders all combined and oper-

ating together, substantially as described.

6. The combination of a folding bed with rear flap folders comprising a pair of oppositely disposed members, each having an extension or extensions thereof in its line of travel respectively to prolong its period of co-operation with the folding bed, and means for rotating the flap folders all combined and operating together, substantially as described.

7. The combination of a revoluble folding bed and rear flap folders, said rear flap folders being so mounted for rotation that their path of travel, during their period of co-action with the folding bed, is substantially concentric with the path of said folding bed, and means for rotating the flap folder all combined and operating together, substantially as described.

8. The combination of a folding bed, having a cylindrical working face, side clips 19, 20, and rear flap folders 115, 116, said rear flap folders mounted for rotation so that their path of travel during their period of co-action with the folding bed, is substantially parallel to the path of travel of the folding bed, and means for rotating the flap folders combined and operating together, substantially as described.

9. The combination of a revoluble folding bed, having its surface curved in its plane revolution, side clips 19, 20, thereon, and rear flap folders, whose blank engaging portions are curved to conform substantially to the curved surface of the folding bed, all combined and operating together, substantially as described.

10. The combination of a revoluble folding bed 10, side clips 19, 20, thereon, a yieldably mounted roll 136, clip 129 thereon to grip thereto and remove the bag blank from the folding bed, said roll also for co-action with said folding bed for folding the front flap of the bag blank and roll 135 for co-action with roll 136 for discharging the bag from the machine, all combined and operating together, substantially as described.

11. The combination of a folding bed 10, having a cylindrical face, side clips

19, 20, rear flap folders 115, 116, whose blank engaging portions are curved to conform substantially to the cylindrical face of the folding bed, yieldably mounted combined folding and delivery rolls 120, clip 129 and roll 135, all combined and operating together, substantially as described.

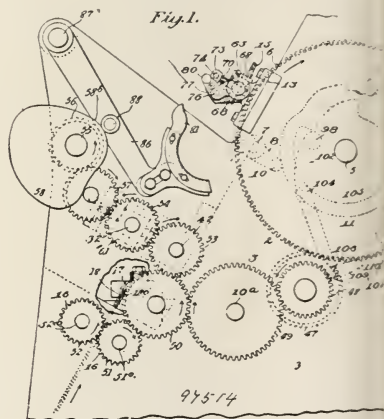
No. 97,514. Paper Bag Making Machine

Machine à faire les sacs de papier

Frederick E. Strasburg, Rumford Falls, Maine, U. S. A., 13th February, 1910.

6 years. Filed 13th November, 1906. Receipt No. 130,060.

Claim.—1. The combination of a pair of rolls, 19, 20, a slacker bar in each of said rolls, and means for supporting each slacker bar to yield in the line of



travel, all combined and operating substantially as described.

2. The combination of a pair of rolls 19, 20, a slacker bar in each of said rolls, and means for supporting each slacker bar to yield in the line of its travel, and means for adjusting the strokes respectively of the slacker bars, all combined and operating substantially as described.

3. The combination of a pair of rolls 19, 20, a slacker bar in each of said rolls, means for supporting each slacker bar to yield in the line of its travel, an creaser blade 59 in one of the slacker bars and a creaser groove 60 in the other slacker bar, all combined and operating substantially as described.

4. The combination of a pair of primary rolls 16, 16, knife 18, striker 1

of secondary rolls 19, 20, a slacker bar in each of said secondary rolls and means for supporting each slacker bar to yield in the line of its travel, all combined and operating substantially as described.

The combination of a pair of rolls 19, 20, a slacker bar in each of said rolls, means 28 pivoted at each end of each roll respectively for supporting each slacker bar to yield in a line substantially concentric with the periphery of its respective roll, all combined and operating substantially as described.

The combination of a pair of rolls 19, 20, a creaser blade 590 in one of the rolls, and a creaser groove 600 in the other roll, a slacker bar in each of said rolls, means for supporting each slacker bar to yield in the line of its travel, a creaser blade 59 in one of the slacker bars, and a creaser groove 60 in the other slacker bar, all combined and operating together substantially as described.

The combination of a pair of rolls 19, 20, a creaser blade 590 in one of the rolls, and a creaser groove 600 in the other roll, a slacker bar in each of said rolls, means for supporting each slacker bar to yield in the line of its travel, means to adjust the strokes respectively of the slacker bars, a creaser blade 59 in one of the slacker bars, and a creaser groove 60 in the other slacker bar, all combined and operating together substantially as described.

The combination of a pair of rolls 19, 20, a creaser blade 590 in one of the rolls, and a creaser groove 600 in the other roll, slacker bars 29, 40, in said rolls respectively, means for pivotally supporting each slacker bar to yield in the line of its travel, a creaser blade 59 in one of the slacker bars, and a creaser groove 60 in the other slacker bar, all combined and operating together, substantially as described.

The combination of a folding bed, means to grip a bag blank thereto, a tucker plate mounted for vibration above the folding bed and for co-action therewith, a slide clip pivotally mounted on each side of the tucker plate, a pinion on each side clip pivot shaft, a rack bar

in engagement with each pinion, a rock arm for actuating each rack bar and a cam for actuating each rock arm, all combined and operating substantially as described.

10. The combination of a folding bed, means to grip a bag blank thereto, a tucker plate mounted for vibration above the folding bed and for co-action therewith, a side clip pivotally mounted on each side of the tucker plate, a pinion on each side clip pivot shaft, a rack bar in engagement with each pinion, a cam for actuating each rack bar and means intermediate each rack bar and cam respectively for actuating the rack bar from the cam, all combined and operating substantially as described.

11. In a paper bag machine, the combination of a tucker plate vibrating upon fixed trunnions, oppositely disposed side clips pivotally mounted on the tucker plate, a pinion on each side clip pivot shaft, a rack bar in engagement with each pinion, two oppositely disposed equal cams, a rock arm intermediate each rack bar and cam respectively for actuating the rock bar from the cam, and means to move the cams into and out of engagement with the rock arms respectively, all combined and operating substantially as described.

12. The combination of a folding bed, oppositely disposed side clips and a front clip thereon, means above the folding bed for opening out the forward end of a bag blank folding it down into the diamond form, a guard finger mounted for movement into the mouth of the bag blank and onto the lower ply thereof, and means to actuate the guard finger, all combined and operating substantially as described.

13. The combination of a rotatable carrier, a folding bed thereon, oppositely disposed side clips and a front clip on the folding bed, means above the folding bed for opening out the forward end of a bag blank and folding it down into the diamond form, an oscillatable arm pivotally mounted in the rotatable carrier, a guard finger pivotally mounted in the free end of the oscillatable arm, means to oscillate the arm toward and

away from the folding bed and means to move the guard finger up and down with respect of the folding bed.

No. 97,549. Machine for Making Paper Board Boxes.

Machine à faire les boîtes de carton.

John Avison Wormald, 117 Main Street, Largs, Ayrshire, Scotland, 13th February, 1906; 6 years. Filed 27th March, 1905. Receipt No. 123,747.

Claim.—1. A machine for making boxes from a continuous piece of stout paper board comprising in combination two metal rollers made in sections, means for fastening the sections together, cutting and bending knives fitted in the surface of the sections of the one roller, corresponding grooves made in the surface of the sections of the other roller, and means for rotating the rollers, substantially as described.

2. A machine for making boxes from a continuous piece of stout paper board comprising in combination two metal rollers made in sections and fitted on a shaft, a key on the shaft adapted to fit

into keyways in the sections, means clamping the sections on the shaft securing them together, cutting and bending knives fitted in the surface of the one roller, corresponding grooves

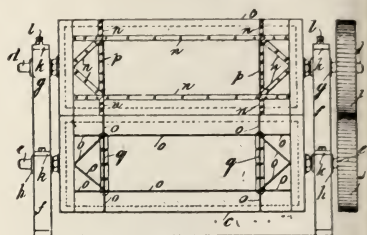


Fig. 1

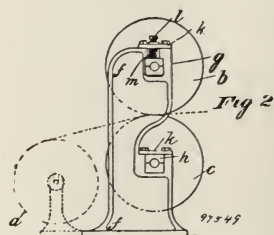
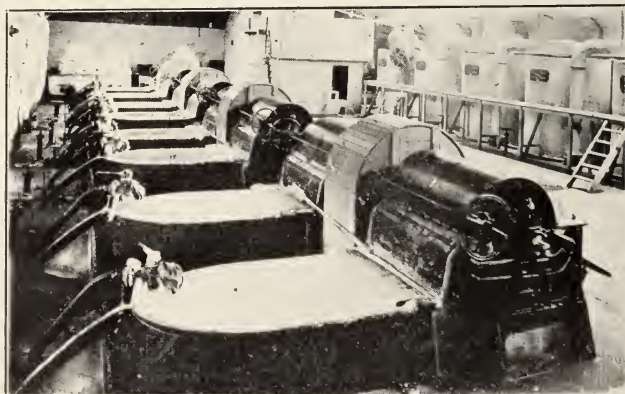


Fig. 2

made in the surface of the other roller and means for rotating the rollers substantially as described.

Masson, Scott & Co., Limited

Paper-Makers' Engineers



SPECIALITIES

Patent Machinery for Bleaching and Beating.

Strainer Plates, Closing Strainer Plates.

Sole British Agents for

Robert Dietrich's Kneader for Pulp-ing Paper Stock.

MASSON, SCOTT & CO., LIMITED
CORONATION WHARF, FULHAM,
LONDON, S.W., = ENGLAND.

Spanish River Pulp Mills

One of the completest and most up-to-date pulp mills on the continent is that of the Spanish River Pulp and Paper Co., recently completed at Espanola, Ont. Its present capacity is 70 tons per day, but when the additional baling presses and other machinery are put in, as will be the case by October next, the average production will be at least 110 tons per day. All the pulp is shipped by way of the Soo, to the United States, where it

the plant is designed with a view to economically handling and manufacturing a high grade of ground wood pulp, and reducing the cost of repairs to a minimum. Gravity is taken advantage of as far as practicable, and all the latest labor saving devices have been installed. The wood is conveyed direct from the booming ground by means of an endless chain to the barking room, which is equipped with twelve of the latest type



Spanish River Pulp & Paper Co.

in brisk demand, and sells at good prices. Power is derived from the falls at Spanish River, which have a drop of about 65 feet. The company has already developed some 10,000 horse-power, out of probably 15,000 horse-power available; the plant consisting of 5 10-foot steel stocks, supplying the turbine with 200 h. p. each.

The mill is constructed of brick, concrete and steel of the most substantial character, and the whole equipment of

of barkers. Passing through this room it descends to the grinders, which, twenty-four in number, are of the most modern construction, with a capacity of five tons each per 24-hours. The product of the grinders is conveyed by two centrifugal pumps to the centrifugal screens, which are of the most approved pattern, and after passing through these is handled by 16 diaphragm screens. The product is then conveyed by gravity to the wet machines, 16 in number, after

BECKER & CO.

F. E. R. BECKER - - - LONDON

GEORG v.d. BUSCHE, Jr. - - HAMBURG

64 CANNON ST., LONDON, E.C.

MANCHESTER OFFICE - - ROYAL EXCHANGE

The Largest Importers of

Wood Pulp

LABRO TRAESLIBERI, Christiania.
The Finest Mechanical Produced.

ANKERS TRAESLIBERI, Fredrikshald.

Hot Ground P.A. Brand.

BJORKA AKTIEBOLAG.

Dry Mechanical Lion Brand.

AKTIE BOLAGET IGGESUNDS
BRUK, Iggesund.

HEEN TRAESLIBERI, Christiania.

RAMFOS TRAESLIBERI, Christiania.

VAFOS BRUG, Krageroe.

CHICOUTIMI PULP CO.

Canadian Hot Ground Spruce.

NOVA SCOTIA WOOD PULP CO.

BELGO PULP CO., Schwenigen.

SKOTSSELV CELLULOSEFABRIK,
Skotselven.

Easy Bleaching Sulphite.

VESTFOS CELLULOSEFABRIK,
Christiania.

Easy Bleaching Sulphite. (Scotland excepted.)

SKIEN CELLULOSEFABRIK, Skien.
Strong Sulphite Pulp.

KONIGSBERGER ZELLSTOFF-
FABRIKEN.

German Mitscherlich Pulp.

FORSMARK BRUK.

Easy Bleaching Soda Pulp.

VEREINIGTE STROHSTOFF FAB-
RIKEN.

Bleached Straw Pulp.

AKTIEBOLAGET, KAUKAS FABRIK,
Helsingfors, Finland.

SKONVIK AKTIE BOLAG, Skonvik.

which it is hydraulically pressed between 25 per cent. and 60 per cent. dry. The product is then baled, and by means of an elevator conveyed to the shipping wharf ready for transportation.



NEW COMPANIES.

The Schofield Paper Company, St. John, has been incorporated under New Brunswick laws with a capital of \$10,000. Those interested are H. B., J. A., G. H. and E. M. Schofield and F. Frith.

The British Columbia Mining Exchange, Limited, has been chartered with a capital of \$25,000 to publish and sell newspapers, books, etc., and carry on business as stationers, bookbinders, paper and ink manufacturers, etc.

La Patrie Publishing Co., Montreal, is authorized under Dominion charter to print and publish newspapers and to make and sell pulp paper, composite material, acquire lumber lands, erect mills, &c. The capital stock of the company is \$500,000. Hon. J. I. Tarte is a leading spirit.

The Waying Yatpo (Chinese Daily Newspaper Publishing Co.) has been incorporated by the British Columbia Government with a charter to issue and sell newspapers and books, and to carry on business as printers and publishers and dealers in paper and book. Capital, \$10,000.

The Lamb-Watson Lumber Co., Ltd., Winnipeg, has been authorized by the Dominion Government to manufacture and deal in pulp logs, lumber fuel, &c. Capital stock is \$850,000. Otto Lachman, of Arrowhead, B. C., and C. R. Lamb, of Minneapolis, are interested.

British Columbia Timbers, Limited, Montreal, has been incorporated with a capital of \$100,000 to carry on the business of lumberers, timber merchants, manufacture all products of the forest and erect pulp mills. The charter members are L. MacLaurin, G. A. Forbes,

R. H. Fulton, R. T. Heneker and G. H. Bissett, all of Montreal.

The Pacific Slate Co., Ltd., just incorporated under British Columbia charter, has for its object among others the carrying on of business as timber merchants and saw and pulp mill proprietors, and buying, dealing in, and preparing timber and articles made thereof. Its capital stock is placed at \$125,000. It will buy certain parcels of land around Desert Bay, Vancouver district.



AMONG THE MILLS.

The Cushing Sulphite Mill is to be sold by auction at St. John on September 1st.

After having been in Toronto a year the Kinleith Paper Company have removed their head offices back to St. Catharines.

The Lincoln Paper Co. are starting the manufacture of paper at Merritton, Ont., taking over for this purpose the old Lybster Cotton Mills. The property is exempted from taxation for ten years.

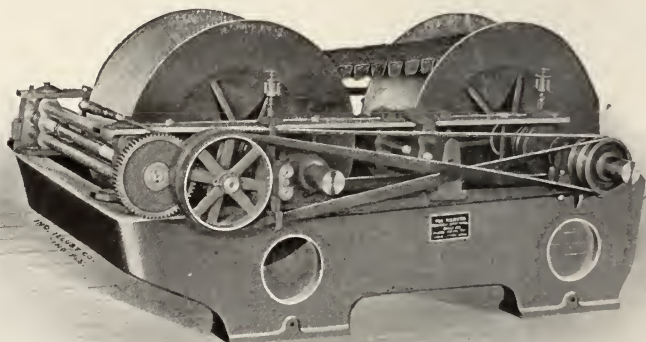
In accordance with custom, the paper mills at Holyoke, Mass., closed down for a day or so early this month for repairs to their equipment, and to the canals. Trade is described as seasonably dull, but not so much so as is often the case at this period of the year.

Brown Bros. & Beach are negotiating for the lease of the waterpower at Merritton, Ont., owned at present by the Canada Colored Cotton Co., and would utilize it for making paper. The assessment on the property for the next ten years is set at \$60,000, as announced in last issue.

The St. George Pulp and Paper Company's lumber mill at St. George, N.B., and lumber estimated at a million feet were destroyed by fire of unexplained origin. The lumber was manufactured for the United States market. The loss is estimated at \$25,000, with no insurance.

WAIT!

Don't Turn Another Page
Here It Is



The Much Talked of "THE REEVES" Variable Speed Transmission

The one practical device for regulating the speed of the paper machine.

It everlastingly gets away from the nerve racking old true cone, in whatever form it seeks to disguise itself.

There is absolutely no shifting of belt.

It is made in sizes to drive anything from a winder to a 140" Fourdrinier.

Any speed within its extreme range of variation may be instantly secured and the changes effected without breaking or stopping the paper sheet.

Recommended and adopted by the largest and most progressive paper mills in America and Europe.

Send for Paper Machinery Catalogue To-day

REEVES PULLEY COMPANY,
COLUMBUS, INDIANA, U.S.A.

A serious accident happened recently at the pulp mill of the Jacques Cartier Pulp and Paper Co., Limited, at Pont Rouge, Que., whereby the water wheels and part of the stone building were wrecked. The company has decided to rebuild the mill and to double its former capacity. E. Bradley, C.E., of Montreal, has been appointed consulting engineer for the work.

A large building of the International Talc Co. at Halesboro, N. Y., has been totally destroyed by fire. Its capacity was sixty tons per day. The loss is placed at \$150,000, about half covered by insurance. The destruction of so much precious talc is very unfortunate. The mill, we understand, is to be rebuilt shortly. Considerable other work in connection with the plant is under way, and when completed its total capacity will be 180,000 lbs of finished talc per day.

Mr. Alexander MacLean, Canadian Commercial Agent in Japan, reports: "The raw material for what is known as 'rice paper' the kind used for the wrapping of tobacco in cigarette form, and which heretofore has been altogether imported, the native press states has been discovered by a Japanese expert in Formosa, and is about to be largely cultivated. With a view to its manufacture, a company has been formed in Osaka with a capital of \$175,000, with provision for early increase to \$250,000, under the name of the Oriental Paper Manufacturing Co., having as the basis of its operation the supply of the Government Tobacco Department, heretofore an importer of this article. The company will revive the export trade in view also.



NEW PAPER MAKING MATERIAL.

Enormous assets in pulp-wood and large amounts of capital invested in its paper industry, give Canada a more than usually vital interest in any well authenticated report as to the success of attempts to manufacture paper from other materials. In the Southern States a

great ado is being made about an invention to utilize cotton stalks for this purpose. It is said that all grades of paper, from the lowest to the best kind of linen, can be made from the waste which now rots on the field and often spreads disease among succeeding crops. It is estimated that an acre of land, producing on the average one bale of cotton, will produce at least one ton of stalks, and that these will, besides paper, produce several by-products of a profitable character. To such a height has enthusiasm for the new project risen that a \$15,000,000 company to erect a large plant at Montgomery, Ala., has been formed already, and others are talked of.

Meanwhile, there is no occasion for those whose interests lie in spruce to become discouraged. Cotton stalks are by no means proven. One expert chemist in Arkansas, who apparently has gone to some little trouble to investigate, is positive that the idea of manufacturing high-grade paper from that source is chimerical in the extreme, and that making the low grades would be too expensive even for experiment.



PULP AND PAPER MARKETS.

Toronto, August 17th, 1906.

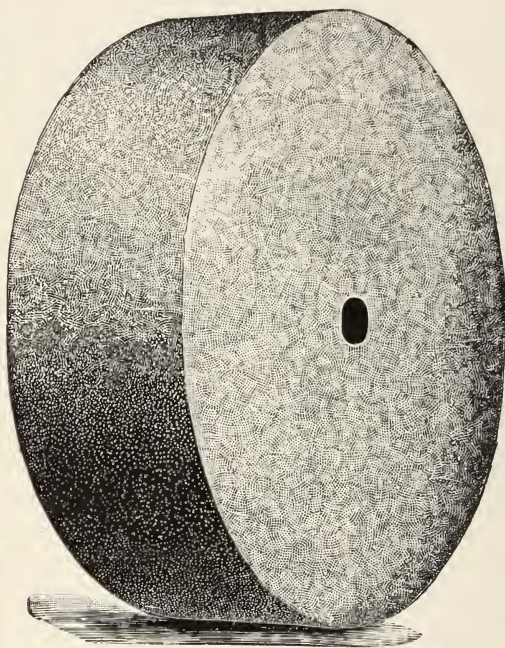
Conditions have improved somewhat in the Canadian markets. The demand for practically all kinds of paper, news print as well as fine book, has about caught up with the supply. It must be admitted, however, that seasonable mid-summer dulness has not altogether departed yet. One great obstacle with which the mills have to contend is the scarcity of labor. Jute baggings and manila ropes are very firm, and some lines of manila papers have advanced nearly 50 per cent.

Ground wood is firm, prevailing prices being \$12 to \$12.50 in Canada, or \$19 to \$22 delivered at United States mills.

* * * * *

In the United States jobbers and dealers in rag stock and supplies report

German Grindstones



Wood
Grindstones,
Wood Pulp
Refiner
Stones,
Edge-Runners
French
Millstones

Artificial Emery and Quarzstones

Stones of all kinds used in Wood Pulp and Paper
Manufactories.

Six Own Quarries at
Wehlen-Zeichen and Langenhennersdorf (Saxony)
Neuland and Goldbach (Silesia) Hoffnung (Bohemia).

GEBRÜDER ISRAEL

PIRNA-ON-THE-ELBE (SAXONY)

Oldest Factory for Wood Grindstones in Germany.

Established 1866.

business dull, but better than usual at this time of the year. Mills experience good enquiry, with fair-sized orders. Foreign and domestic chemical fibres in good demand.

Latest advices the British chemical market was steady. Ammonia alkali 8 per cent. at £4, 10s; bleaching powder (soft wood), £4, 15s to £5; sulphuric soda, 76-77 per cent., £10, 12s.; soda crystals, £3, 2s. 6d.; recovered sulphur, £5.

For sulphite the demand was steady and prices firm. Not much present demand for mechanical pulp, except at decided price concessions. In 1907, inquiry good and prices firm at £2 to £2. 2s. 6d. for moist, and £4 for dry.



BRITISH PAPER IMPORTS.

British imports of paper and boards from other parts of the Empire as against those from foreign sources showed an improvement last year compared with 1901. But over 91 per cent. of the imports still come from the latter as shown in the following summary:—

	From Foreign Countries.	From British Possessions.
Printed—on reels.	£919,141	£124,004
Printed—not on reels	2,540,673	61,069
Engings	133,012	106
Over printed or coated	435,733	1,127
Rawboard	541,841	1,887
Board and wood pulp board	443,778	53,694
	£5,014,178	£241,887

In 1901, the imports from foreign countries were valued at £4,224,889, and from British possessions, at £117,345. The increases have thus been £789,289 and £4,542 respectively. The exports of Canada to the United Kingdom of un-

printed paper in 1905 were £185,000, and in 1901, £96,029; of boards, £55,581 in 1905, and £19,968 in 1901.



ANOTHER VIEW OF CANADA'S FORESTS.

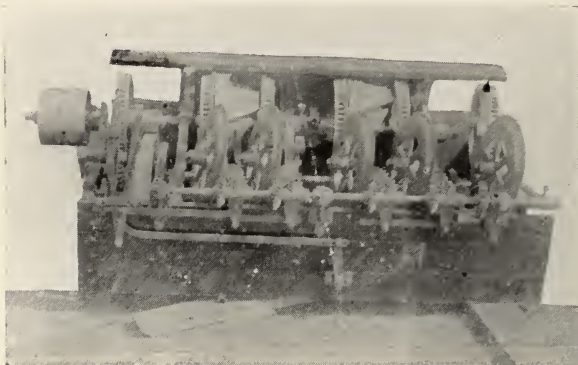
Mr. Worman, U. S. Consul at Three Rivers, in reference to the statement that destruction of Canadian forests is due to heavy demands from the United States, writes as follows:

"The president of the Quebec Limit Holders' Association recently named several causes for the destruction of Canadian forests, the planting of settlements being the chief cause. It should also be stated that, abundant as are Canada's forest supplies, the United States takes only twenty-five per cent. of her timber consumption from Canada. The States consume yearly about 2,500,000 cords of pulp wood, of which the Adirondack forests alone produce 580,000 cords. From Canada the pulp wood exports for the year ending July 1, 1904, were 479,238 cords, valued at \$1,788,049, and for the year ending July 1, 1905, they figured at \$2,600,814, America taking all. To this should be added another product of the forest, the ground wood pulp, which now supports thirty-eight mills, turning out 854 tons daily, of which, besides the home consumption, the export in 1905 amounted to \$3,399,158, the United States taking of this export to the amount of \$2,694,122. The value of the Canadian forests, then, lies not alone in the wood, for important lumbering and allied industries are largely dependent on the existence of these forests, and, therefore, properly, a credit to the forest returns."



—It is claimed by those in a position to know that recent arrangements made by the Union Sulphur Company of Louisiana, with Sicilian producers of sulphur to sell the latter in America, will convert the brimstone trade into a practical monopoly.

The Moreau Pulpwood Barker



Capacity, 3 Cords per hour with 2 men and 6 horse power.

It can be run the year round in dry, green or frozen wood.

The Real Machine which takes only 16 to 18 per cent. discount of the wood and saves money.

WRITE TO-DAY FOR FURTHER PARTICULARS.

The Moreau Barking Machine Co., Ltd.

C. MANSEAU, Selling Agent for U.S. and Canada, Mitchell, Quebec.

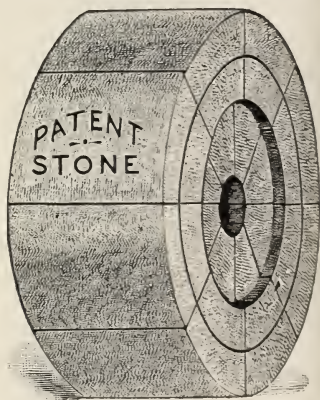
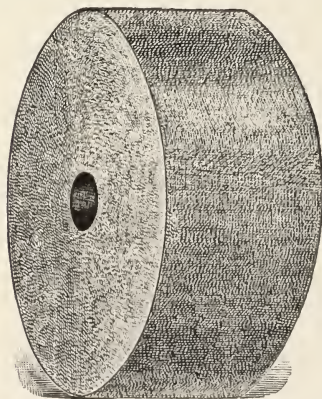
RELIABLE AGENTS WANTED.

PULP STONES

ENGLISH, GERMAN and SCANDINAVIAN

ALSO THE

PATENT UNIVERSAL



the construction of which gives to it advantages not found in the one piece stone.

Let us tell you about them

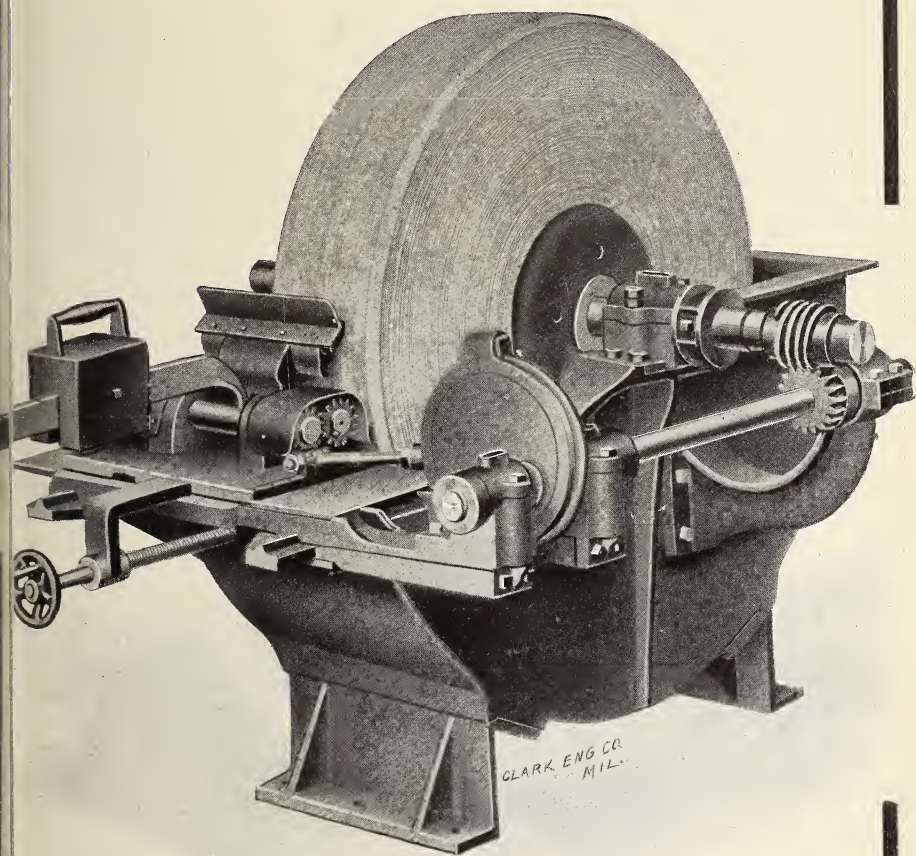
JEAN FREESE

132 NASSAU ST., NEW YORK, U.S.

The Read Lumber and Timber Co., of Ottawa, has been granted a dominion charter authorizing it to do a general lumbering business in Canada and else-

where, with a capital of \$1,000, Charles Read and Walter White, of Ottawa, and Robert M. Cox, of London, are interested.

Valley Iron Works Co., Paper & Pulp Mill Machinery Specialists



AUTOMATIC BARKER KNIFE GRINDER.

This machine has a capacity of 150 perfectly ground knives per day, and does not draw the temper of the knife—therefore effects a saving in your knife account. It is the only machine of its kind on the market.

WRITE US FOR PRICES.

Valley Iron Works Co., Appleton, Wis., U. S. A.

Holyoke Steam Boiler Works

INCORPORATED

T. H. SEARS, Mgr

HOLYOKE, MASS., U.S.A.

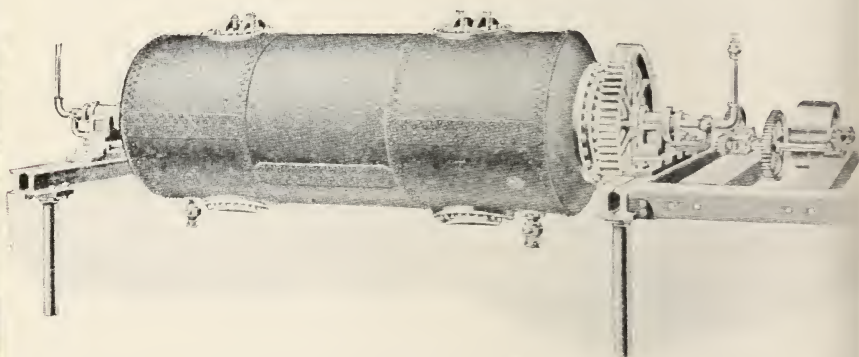
MANUFACTURERS OF

EXTENSION FURNACES. With Patent water circulating covers.
Can be connected to any type of boiler. Patented in United States and Canada.

HIGH PRESSURE HORIZONTAL TUBULAR BOILERS. With special grates, bridge-wall, blow off, feed pipes, and tubes.

IMPROVED DIGESTERS. Strong and rigid, removing all possibility of cracking or checking the lining once set.

Improved Rotary Bleach Boilers.



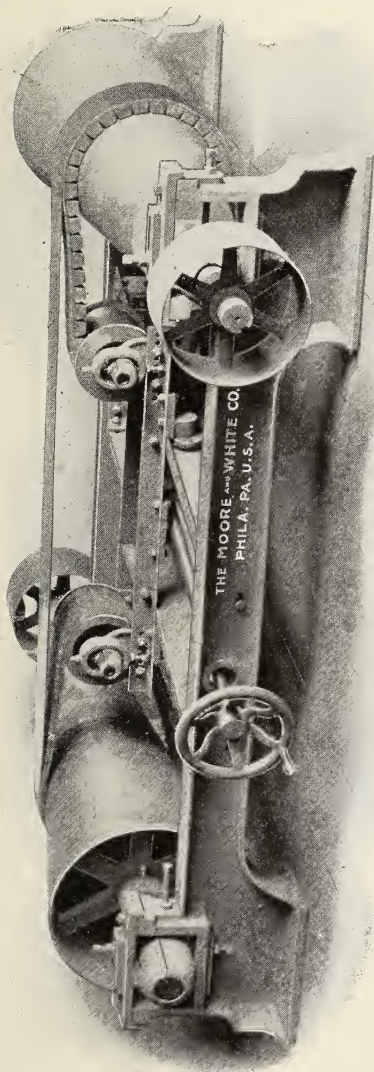
This cut illustrates our improved rotary bleach boiler the result of more than 30 years careful study and experience. The most complete of its kind in the world. Over 300 in use in Canada, United States and Mexico

IMPROVED VERTICAL BOILERS.

Embodying high economy, cheap maintenance, great durability, absolute safety, small floor space.

**We are Specialists in Boilers and
Furnaces for Pulp and Paper Mills.**

"Moore & White" SPEED CHANGE for Paper Machines.



WIDE BELT.

PERFECT CONTACT.

ANY DESIRED RATIO OF CHANGE.

Absolutely No End Thrust or Tendency Sidewise of
Transformers or Driving Belt.

The Moore & White Co.

PHILADELPHIA, U. S. A.

**BUILDERS OF PAPER MAKING
MACHINERY**

500 Twelve Foot Logs Per Hour

Cut into two-foot lengths ready for the barker. That is the ordinary capacity of

Perron Gagnon & Co.'s Automatic Pulp Wood Sawing Machine.

(Patented in United States and Canada, 1900 and 1906.)

One man alone operating the machine can cut 5,000 logs every ten hours without much exertion. Logs automatically conveyed to the saws, and from the saws to the barker.

A machine installed in the large No. 2 mill of the Chicoutimi Pulp Co. and operating 10 hours per day

Supplies Wood to Twenty Grinders Working 24 Consecutive Hours.

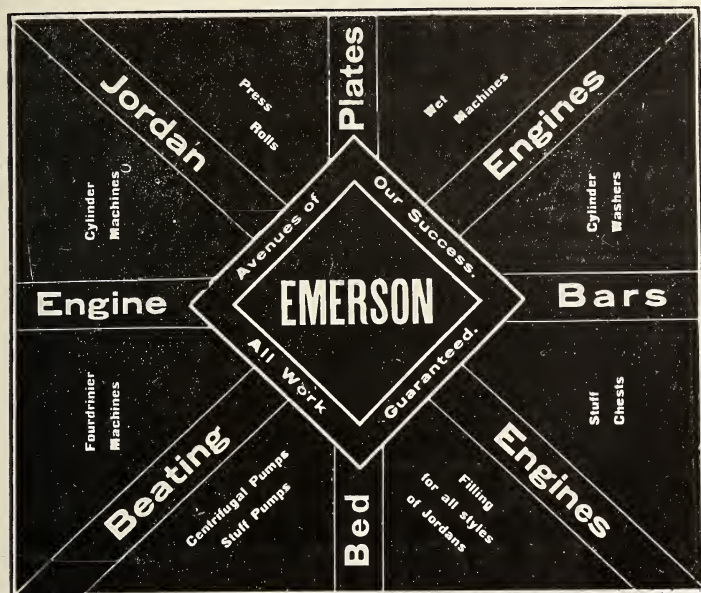
On account of its many advantages, and the fact that it requires only one man to operate, our machine has replaced expensive systems requiring the services of 18 to 20 men.

ECONOMISE IN YOUR WAGES BILLS, INCREASE YOUR
PRODUCTION, AND SWELL YOUR PROFITS.

This can only be done in the pulp mill by the use of our up-to-date sawing system. Write to-day for catalogue and particulars.

PERRON, GAGNON & CO.,
CHICOUTIMI, QUEBEC,
Patentees and Sole Manufacturers

EMERSON MFG. CO.



LAWRENCE, = = = MASS.^F

BOILERS FOR ALL SERVICES

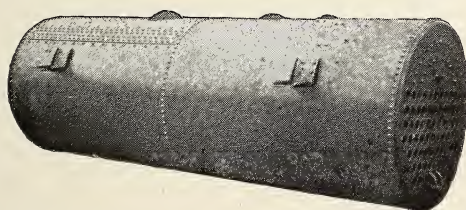
Return Tubular "McDougall" Water Tube, Marine, Etc.

TANKS

Water Tanks, Penstocks, Steel Rivetted Pipe, Etc.

MACHINERY

Complete Power Plants built and installed.



Sole Manufacturers in Canada for Worthington Turbine Pumps and Double Impulse Water Wheels.

John McDougall Caledonian Iron Works Co., Limited, Montreal.

DILLON MACHINE

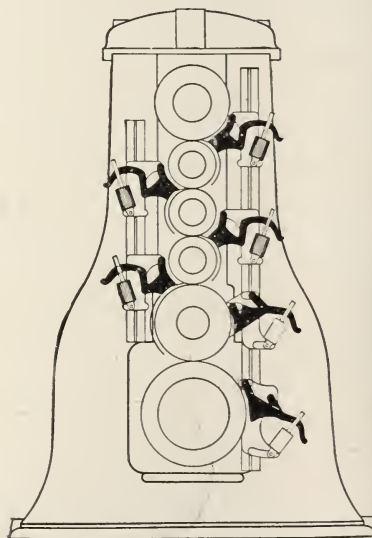
COMPANY

BUILDERS OF

PAPER MILL MACHINERY

Beating and Washing Engines,
No. 1 and No. 2 Refining Engines,
Stuff Pumps, Single, Double and
Triple, all sizes, fitted with the
Dillon Patent Valve Seating,
Wet Machines, Stuff Chests,
Horizontal and Vertical, all sizes,
Single and Double Paper Cutters,
Backstands, Dillon Patent Calen-
der Doctors and Feeds, Jordan
Filling, Poll Bars, Bed Plates
and Cutter Knives.

Our Patent Calender Doctors and Feeds
are made in Canada.



DILLON DOCTORS
AND
FEEDS

DILLON MACHINE CO.
LAWRENCE, MASS.

LAWRENCE, MASS., U.S.A.

MIRAMICHI PULP & PAPER CO., Limited.

CHATHAM, N. B.

Manufacturers of High Grade Easy Bleaching

Sulphite Pulp

Suitable for Writing and Book Papers

ESTABLISHED 1878

George E. Hanson

Expert Manufacturer of High-Class

FELTS

FOR SULPHITE AND GROUND WOOD PULP MILLS

Only best of stock is used in making these goods. I am supplying some of the best Mills in Canada, among them being, The E. B. Eddy Co., Hull; J. R. Booth, Ottawa; James Maclaren Co., Buckingham, Que; Nova Scotia Pulp Co., N.S.; Lake Megantic Pulp Co., Lake Megantic, Que.; A. J. Morrill, Nicolet Falls, and others.

A trial order would be appreciated.

HULL WOOLEN MILLS, HULL, P.Q.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,
Ejector Vacuum Pumps — Bertrams Limited — Patent.

DR. C. WURSTER'S ^{Patented} Pulping Engines and Kneaders

OVER 200 SOLD

FOR PULPING-UP

Dry Wood Pulp, Machine "Broke," Old Paper Stock Waste Papers.

MADE IN THREE SIZES TO PULP THREE, SIX
AND NINE TONS DRY WOOD PULP IN
TWENTY-FOUR HOURS. — FIVE, EIGHT AND
TWELVE HORSE POWER REQUIRED.

£125, £150 and £200 c.i.f. U.K. Ports.

Beaters and Edge Runners can be filled in from one to two minutes if the pulp is first disintegrated by one of the Wurster Engines, while the output is larger with the same power. These Engines do four times the work of stones, and neither shorten, affect crease, or wet the fibre in any way, nor change the color or the sizing. They can also be used for Kneading Clay and other Fillers, and Bleaching Powder.

For full particulars apply to

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.
ENGLAND.

PAPER STOCK MARKET REPORT.

Montreal, August 15, 1906.

The prevailing tone of the paper stock market is one of firmness. This is says the quiet season of the year when water power is low and mills are shut for repairs.

There is an active demand for rope and bagging, and manilla rope has kept steadily advancing in price. Actual figures are hard to obtain, but its top value is probably between 4½ and 4¾c. There is a steady call for roofing stock, and European quotations for this stock have advanced about 5s. per ton during the last month.

There are considerable stocks of cotton rags accumulating, but packers do not seem willing to make concessions, and there are very few sales of these kind place.

Waste papers of all kinds are lower in price and in little demand. Why such useful class of stock should be so much neglected is hard to say. Probably the convenience in using wood pulp and the ease with which it can be obtained may be a reason, but there would appear to be good money in the intelligent use of waste paper at to-day's values.

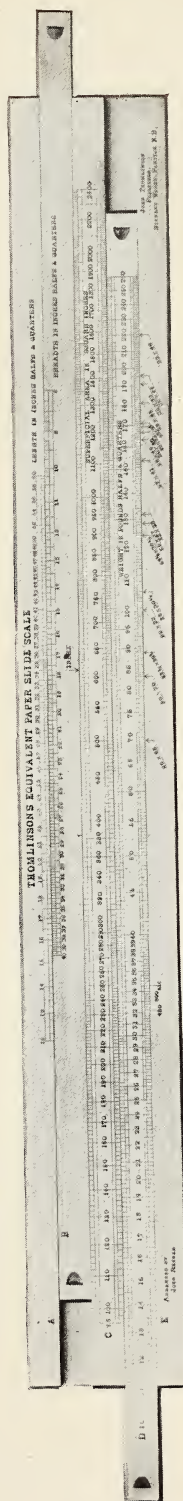
o. 1 white shirt cuttings	\$5.25 to \$5.75
light print cuttings.....	4.00 to 4.50
unbleached cuttings	4.50 to 5.00
white shoe clips	4.50 to 5.00
colored shoe clips	2.75 to 3.25
domestic white cottons...	2.00 to 2.25
lues and thirds	1.30 to 1.40
roofing stock .....	.90 to 1.10
waste paper .....	.30 to .40
manilla rope	4.25 to 4.50
bagging .	.90 to 1.00

FOR SALE

Two Second hand Jordan Engines. In good condition. Taken out to replace with larger. For particulars apply Kinleith Paper Co. Ltd., St. Catharines, Ont.

YOU NEEDED IT

For calculating the relative weights of different sizes of paper and similar calculations employing "the rule of three."



Write now for booklet.

Price in Waterproof Cardboard, \$3.50 each.
Price in Extra Finished Boxwood, \$15.00 each.

84 WELLINGTON STREET WEST, TORONTO, CANADA.
PRICE & RAMSAY, Limited,

Cable Address,—"Kaolin, Manchester." A.B.C. Codes, 4th & 5th Editions

CHINA CLAY CO.

JOHN WILLIAMSON, Manager.

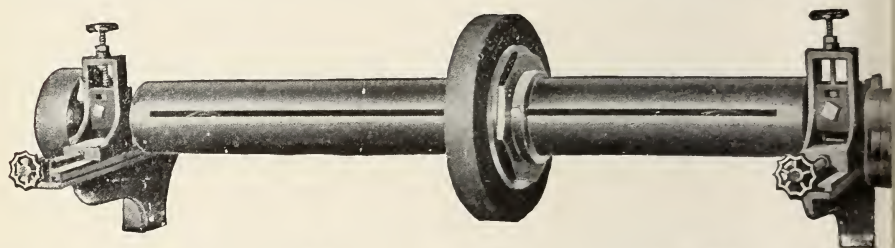
4 St. Annes's Square

MANCHESTER, ENG.

MINES—Ruddle, Bojea, Colchester, South Ninestones, Tronance, St. Aust Cornwall.

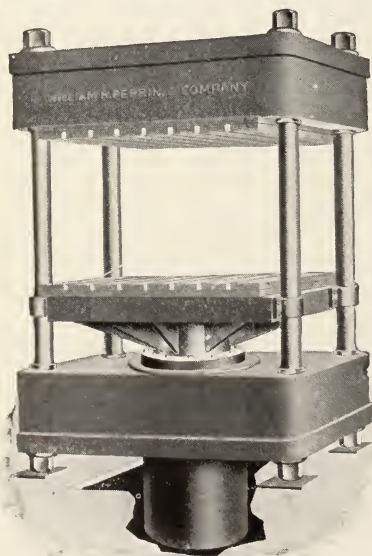
CONTRACTORS TO H.M. INDIAN GOVERNMENT

"The Roy Patent Calender Roll Grinde



B. S. ROY & SON, - Worcester, Mass. U.S.

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders,
Pumps, Heaters.

F. H. DAVIS & CO.,

161 Devonshire St.,
BOSTON, - - MASS.

C D'Oyley Mears & Co.,

PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
Warrope Chambers, Queen Victoria Street,
London, E. C.

THE RIORDON PAPER MILLS, Limited.

Merritton and Hawkesbury, Ont.
Merritton Mill—Newspaper, Hanging
Paper, Wrapping Paper and Building
Paper and Sulphite Pulp.
Hawkesbury Mill—Sulphite Pulp.

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, - - - - 82 Beaver Street, New York.

Norwood Engineering Company,

FLORENCE, MASS., U.S.A.

Builders of the highest grade of Paper
Finishing Machinery, Rag Dusters, Belt
Power Elevators, etc. Contractors for Fil-
ter Plants of any size, Industrial or Muni-
cipal, Gravity or Pressure system.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway)	..	Kirkegaden No. 20.
GOTHENBURG (Sweden)	..	Lilla Kyrkogatan No. 20.
MANCHESTER	.. ..	Guardian Buildings (opposite Exchange).
LONDON	.. .. .	77a Queen Victoria Street, E.C.
PARIS	.. .. .	Rue de Londres No. 29.
ANGOULEME (France)	..	43 Rue Louis Desbrandes.
LYONS	.. .. .	54 Cours Gambetta.
MILAN	.. .. .	24 Via Solferino
TOLOSA (Spain)	.. .. .	18 Calle San Francisco.
NEW YORK	.. .. .	99 Nassau Street.
ST. PETERSBURG	.. ..	Little Podjascheskaja House, 4. Qu. 16.

Telegraphic Address:

"WERTHEIMO, HAMBURG."

**PARKER,
HIPPER,
PAPER-CUTTER**

MACHINE KNIVES *Of Every Description.*

The Peter Hay Knife Co., Limited, Calt, Ont.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.
DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.



REGISTERED.

JOHN KNIGHT & CO.,

CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents
for the ...

L.G.V., W.F.,



and other
Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

1906
Edition

Price 10/6 net, or post free in United Kingdom 11/-; Abroad 11/6. Demy 8vo., cloth bound, 6,050pp.

1906
Edition

The Paper-Makers' Directory of all Nations.

Annuaire de la Papeterie de Toutes les Nations.

Internationales Adress-Buch Sammtlicher Papier-Fabrikanten der Welt.

Alphabetically arranged throughout. Printed in clear type.

CONTENTS INCLUDE:

PRINCIPAL PAPER, PULP and BOARD MILLS, &c., OF THE WORLD (5,000) arranged according to countries (40), giving Names, Addresses, Makes of Paper, Number and Width of Machines, Weekly Turn Out, Power Used, Telegraphic Addresses, &c., &c.

FIRMS CLASSIFIED according to PRINCIPAL PRODUCTIONS.

BRITISH PAPER AGENTS AND MILL REPRESENTATIVES with Addresses and Firms Represented.

WASTE PAPER and RAG MERCHANTS and PAPER STOCK DEALERS (British).

CHINA CLAY DEALERS (British).

EXPORT MERCHANTS AND SHIPPERS OF PAPER.

WHOLESALE STATIONERS AND PAPER MERCHANTS.

ENAMELLERS, VARNISHERS, SURFACERS and STAINERS OF PAPER, &c. &c. &c.

CARDBOARD AND PAPER BOX MANUFACTURERS.

TO BE OBTAINED FROM

DEAN & SON, LIMITED, 160a, Fleet Street, London, E. C.

STUFF PUMP

This pump is made in three sizes, 5", 6" and 8".

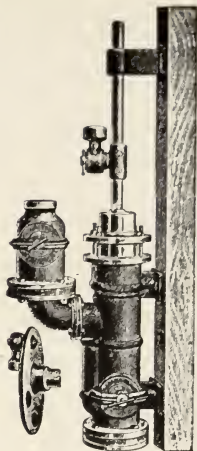
The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by

T. McOUAT & SON, Lachute, Que.,



MAPLE LEAF
STITCHED COTTON DUC
BELTING
DOMINION BELTING CO. LTD
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of

**GRADED RAGS, PAPER STOCK
ROPE BAGGING, ETC.**

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction Boards.
Mills at Sault au Recollet, P.Q.

ATTERBURY BROTHERS, Incorporated.
Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC **Rags AND Paper Stock**

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

WIRE PULP MATS

Perforated Copper, Brass and Steel. Wire Rope. All kinds.
Wire Guards for Mill Windows. Refuse Burner Cloth, Etc.

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.

BELOIT IRON WORKS,

BELOIT, WIS., U. S. A.



BOILERS:

HORIZONTAL TUBULAR
VERTICAL TUBULAR
LOCOMOTIVE TYPES

ALL SIZES.

MEDIUM or HIGH PRESSURE

High Pressure Tubular
Boilers from 80 to 250 H.
P. a specialty.

You are particularly re-
quested to send us your
Boiler inquiries.

Write for Bulletin 112.

SALES OFFICES:
TORONTO
ROSSLAND
HALIFAX
VANCOUVER

THE JENCKES MACHINE Co.,

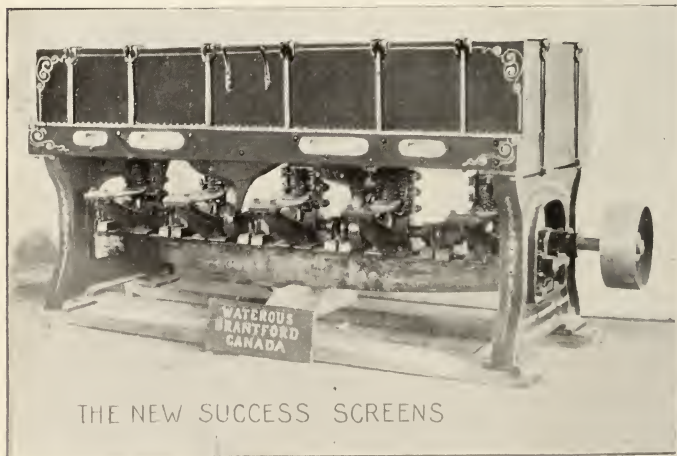
EXECUTIVE OFFICE

LIMITED.

60 Lansdowne St. Sherbrooke, Que.

PLANTS: Sherbrooke, Que.
St. Catharines, Ont.

We manufacture a full line of PULP MILL MACHINERY.



We repair and
make over
Cylinder
Moulds.

Write for Spec
Catalogs.

The Waterous Engine Works Co., Limited

BRANTFORD, - CANADA.

"CHALK WHITE" COATED BOOK PAPER.

The best and whitest coated paper sold. — All regular sizes and weights in stock.

The Cover of this magazine is our Art Litho Cover, stocked in four sizes, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Dundas Mills, Que. = Montreal. = Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

S. YOUNG, = = Sole Agent for Canada.

14 Hospital Street, Montreal.

F

"TURBINE WATER WHEELS"

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from
S. MORGAN SMITH Co.,
YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company,	14,000 h.p.
Montreal Cotton Company,	7,000 h.p.
Sturgeon Falls Pulp Co.....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

JOSEPH H. WALLACE, C.E.

M. AM. SOC. C. E. M. CAN. SOC. C. E.

INDUSTRIAL ENGINEER.

TEMPLE COURT BUILDING, NEW YORK

CABLE ADDRESS "TRIPLEX," N.Y.

MANUFACTURING PLANTS AND POWER DEVELOPMENTS
REPORTS ON INDUSTRIAL PROPERTIES, APPRAISALS, ETC.

A. V. JAASTAD, M.E., CONSULTING STEAM ENGINEER.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland, = - Montrea

PULP AND PAPER MAGAZINE

OF CANADA

VO 4. TORONTO SEPTEMBER, 1906. NO. 9.

FEATURES OF THIS NUMBER

**Development in Kraft
Brown Paper
Norwegian Pulp and Paper
Trade
The Smallest Paper
Machine in the World
Sulphur vs. Pyrites
New Machinery
Imperial Paper Mills
Polishing Papers**

Established 1837

Incorporated 1867

RICE, BARTON & FALES

MACHINE & IRON CO.

CHARLES S. BARTON, Prest. & Treas.
GEORGE S. BARTON, Secretary.

WORCESTER, MASS.

BUILDERS OF

Modern Fast Running and Heavy Four-
drinier and Cylinder Machines for Making
Paper, and Drying Pulp.

Double Drum Vertical Winders and Re-Winders.

Upright and Revolving Reels.

Large and Heavy Wet Machines.

Revolving Cutters and Layboys.

Hill Patent Diagonal Cutters, which can be equipped with
Slitting Arrangement, and Reeling Off Bars.

Chilled Iron Calender Rolls.

Screens and Screen Plates.

Stuff, Suction and Fan Pumps.

Patent Top and Double Edged Slitters.

Pneumatic Re-Winders for Small Rolls.

Additions and Changes made to Old Paper Machines
Greatly Increasing Speed and Capacity.

Makers of the Moore Patent Horizontal Revolving
Screen for Ground, Soda, and Sulphite Pulp.

Foreign Phosphorbronze Fourdrinier Wires,

*Sulphite Pulps, Paper Stock and Rags,
Bleached Straw Pulp, also China Clay.*

JEAN FREESE, Vanderbilt Building, NEW YORK.
132 Nassau Street,

FOURDRINIER MACHINE WIRES CYLINDER COVERS

Unequalled for Strength, Smoothness and Long Life.

GEORGE CHRISTIE, LIMITED

Ladywell Wire Works, GLASGOW, SCOTLAND

Agent—**THOMAS L. PATON**, 30 St. Francois Xavier Street, Montreal, who
holds stock for immediate delivery.

EDWARD J. WELCH, Pres. | EMMONS CROCKER, Vice-Pres. | ARTHUR S. MORSE, Secy.
ADAMS CROCKER, Treas. and Managing Director. | HENRY W. S. DOWNS, Supt.

Union Screen Plate Company of Canada, Limited.

Factory, Lennoxville, Que., Offices: { Lennoxville, Que.
Fitchburg, Mass., U. S. A.

Screen Plates



The "Union" Bronze (best phosphorized cast metal) Plates
for Sulphite Mills. The Standard Rolled Brass Plates.
The "Union" Cast Metal Suction Plates.

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

We carry in stock a large supply of the different sizes of both metals and can fill large orders promptly.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

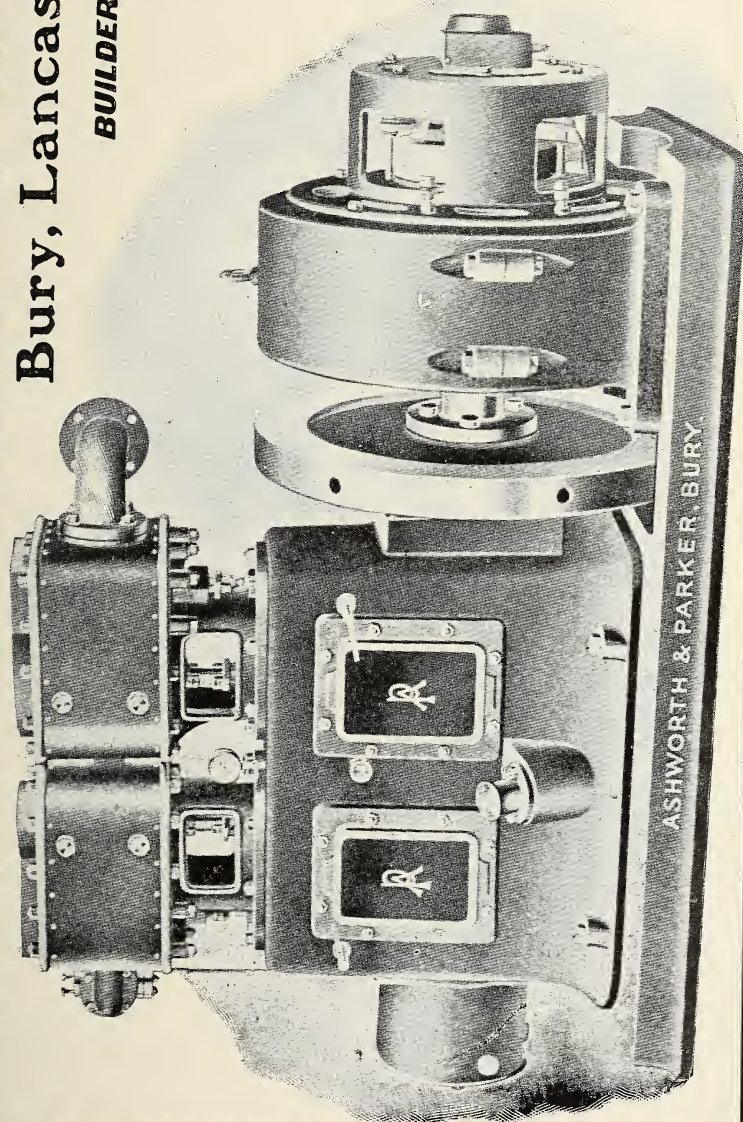
ESTIMATES ON APPLICATION.

Ashworth & Parker

Bury, Lancashire, Eng.

BUILDERS OF ...

Forced
Lubricating
Engines,
Special Types
For Paper
Machine
Driving,
Electric
Generating
and
Centrifugal
Pumping.



BERTRAMS, LIMITED

Papermakers'

Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermakers
embracing British, American and Continental Improvements

C. H. JOHNSON & SONS, Ltd.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rolls

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England.

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

Agents for Canada : C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL

INDEX TO ADVERTISEMENTS.

A. worth & Parker	5	Hough, R.	60
Arbury Bros.	56	International Pulp Co.	9
Baker & Co.	e.o.m.	Irwell and Eastern Rubber Co.	39
Belt Iron Works.	57	Israel, Gebruder	41
Beley & Jackson.	4	Jenckes Machine Co., Limited	12 & 58
Bram's, Limited	6	Johnson & Sons, Limited, C. H.	6
Black-Clawson Co., The	7	Klipstein & Co., A.	11
Bilt & Co., F.	10	Kimball, Herbert S.	9
Brunner, Mond & Co., Limited	60	Knight & Co., John	55
Canada Paper Co.	59	Lea & Coffin, and H. S. Ferguson	9
Canadian Rubber Co. of Montreal	8	Little, Arthur D.	9
Cale, Gottheil & Overton	9	Marshall, T. J. & Co.	44
Clay Clay Co.	52	Masson, Scott & Co., Limited	38
Clstie, J.	50	McDougall Caledonian Iron Works, The	
Clstie, Limited, George	3	John	47
Dal & Son, Limited	55	McOuat & Son, T.	56
Dal & Main	8	Mears, D'Oyley & Co.	53
Dal & Co., F. H.	52	Miramichi Pulp & Paper Co.	49
Dew, J. A.	9	Moreau Barking Machine Co.	24
Dyn Machine Co.	48	Moore & White Co.	45
Dynion Belting Co.	56	Norwood Engineering Co.	53
Dyn & Brownell.	8	Paton, Thomas L.	3
Ernson Mfg Co.	47	Ferrin & Co., Ltd., Wm. R.	52
Farbanks & Moody	9	Perron, Gagnon & Co.	46
Fisher, Julius	10	Porritt & Sons, Joseph	10
Furse, Jean	3	Porritt & Sons, Limited, Samuel	60
Furse, Jean (Pulp Stones)	42	Porritt Bror. & Austin	6
Goring, The B., Wire Co., Limited.	56	Pringle & Son, T.	9
Hanson, Geo. E.	49	Pulp & Paper Trading Co., The.	55
Haly, George F.	9	Pusey & Jones Co	50
Haksworth & Sons Co., Limited, Alfred. 12		Quebec & Lake St. John Ry.	8
Hak Knife Co., Limited, Peter	55	Reeves Pulley Co.	40
Hoke Steam Boiler Works.	44	Rice, Barton & Fales.	2
Hoe, J. H., & Sons Co.	10		

(Continued on Page 8.)

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.

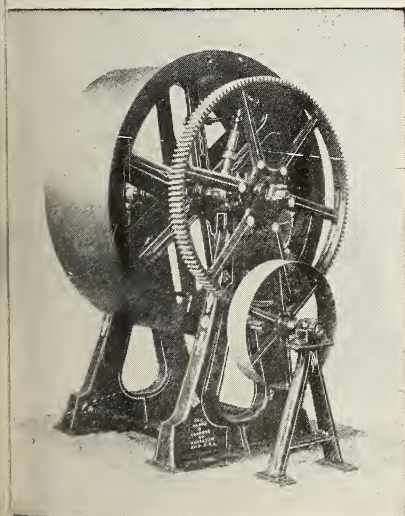
Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

from new patterns and de-
signs embodying the latest
improvements.

Foot-power Perforators.
3 Roller Ink Mills.
Evaporating and Drying
Machinery.

We Solicit Correspondence.



Honest
Value



Com-
plete
Satisfac-
tion

MARK OF QUALITY.

DECKLE STRAPS

We are supplying some of the largest and most discriminating users of Deckles in Canada with maximum success.

Read the following letter, just received in reply to a recent enquiry from our Deckle Strap department:—

"Your enquiry regarding deckle straps to hand, and in reply must say that I have used deckle straps made by the best firms in Scotland and in the United States, and also that I have used yours during the past twenty years, and I have always found your deckle straps equal to, if not better than, any of the above makes.

During the past two years your deckles have proven to be **the finest I have ever used.**

I have not experienced any trouble with them.

JAS. D. FINDLAY, Manager,
Joliette Paper Mills, Joliette, Que."

THE CANADIAN RUBBER CO. OF MONTREAL, LIMITED.

HALIFAX155 Granville St.

MONTREAL..Imperial Bank Building,
St. James St.

TORONTO Corner Front & Yonge Sts.

And at

WINNIPEG, CALGARY, REGINA,
VANCOUVER, VICTORIA.

INDEX TO ADVERTISEMENT

(Continued from page 7.)

Riordon Paper Mills, Ltd.....
Ritchie & Ramsay.....
Roy & Son, B. S.....
Smith Co., S. Morgan
Union Screen Plate Co.....
Union Sulphur Co., The.....
Vogel, C. H.....
Valley Iron Works Co.....
Walker, J. R. & Co.
Wallace, Jos.....
Waterous Engine Works Co., Ltd
Wertheim & Co., A.....
Whittaker, Richard
Wilson, Paterson & Co.
Winn & Holland
Wurster, Dr. C.....
Young, J. S.....

DEAN & MAIN, Mill Engineer and Architect

Exchange Building, 53 State Street,
BOSTON, Mass.

Examinations, Designs and Supervision of
Construction of Pulp and Paper Mills. Examination
and Reports on Projects and Water Power
Developments.

CHARLES E. EATON, JAMES P. BROWNELL,
M. Am. Soc., M. E. C. E.

EATON & BROWNELL,

Consulting Engineers and Architects.

Paper, Pulp and Fiber Mills, Water, Steam and
Electric Power Development, Examination of
Properties, Consultation Reports.

SMITH BLDG. WATERTOWN, N. Y.



This Railway runs through Two Hundred
Miles of the Finest Spruce Forests
America, through a country abounding
Water Powers suitable for Pulp and
Paper Mills and other industries, and
easy access to the Steamship Docks
Quebec.

ALEX. HARDY, J. G. SCOTT,
G.F. & P.A. General Manager
QUEBEC, P.Q.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT and ENGINEER
SPECIALIST IN
Pulp and Paper making. F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
101 Tremont St., Boston, Mass.
Plans, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and Lignite Burners for the Sulphite Process. F

GEORGE F. HARDY, M. AM. SOC., M.E., M. CAN. SOC. C.E.

Consulting Engineer.
Paper, Pulp and Fibre Mills, Examination of Mill Properties, Water Power Developments.
Mutual Reserve Building, - 309 Broadway,
NEW YORK.

"Asbestine Pulp" Filler

Superior to any Clay.
Reduced price on application.
INTERNATIONAL PULP CO.
New York City, U.S.A.

T. PRINGLE & SON

Specialities:—Pulp Paper and Fibre Mills.
Hydraulic Developments and Electrical
Transmissions
409, 410, 411, 412 Coristine Bldg.,
MONTREAL. F

C. H. VOGEL

A. M. Can. Soc. C.E. **ENGINEER**
OTTAWA, CAN.
WATER POWER
Paper, Pulp and Sulphite Fibre Mills

LEA & COFFIN, and H. S. FERGUSON, ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
Water Power Development and Transmission. Steam Power Plants.
CORISTINE BUILDING, MONTREAL.

A. S. FAIRBANKS, Assoc. Mem. Can. Soc. C. E.
Assoc. Am. Inst. E.E.
H. A. MOODY, B.S., M.E.,
Assoc. Mem. Am. Soc. M.E.

FAIRBANKS & MOODY

Industrial Engineers
Paper and Pulp Mills
Hydraulic Development
150 Nassau St., New York.

J. A. DeCEW, B.A. Sc.

Chemical Engineer.
SUN LIFE BLDG., MONTREAL

Specialist in Soda Fiber and Paper Mill Chemistry.
Patented Processes for Digesting, Causticizing, Evaporation, Recovery.

Consultation.

Advice.

Reports.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

JULIUS FISCHER, Maschinenfabrikgegr. 1838. **Nordhausen am Harz** ca. 200 Arbeiter.

supplies as a long years and only specialty all machinery and complete installations for making surface-coloured (stained), coated, printed papers, Chromo, Art, Baryta Papers. For the preparation of gummed and marble papers. Wall paper printing and all auxiliary machinery, of the latest designs and modern construction.

First class references from all parts of the World

JOSEPH PORRITT & SONS

HELMSHORE NEAR MANCHESTER

FELTS

and JACKETS FOR PULP and PAPER MILLS

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes



Agents for the States and Canada,

F. BREDT & CO., - 240 Water Street, NEW YORK

Established 1864

Incorporated 1888

J. H. HORNE & SONS CO.,

LAWRENCE MASS.

MANUFACTURERS OF HIGH-GRADE

PAPER MILL MACHINERY

Beating and Washing Engines

"Jordan" Engines

"Horne" Improved Patent Engines

"Cloudman" Cylinder Washers

FOURDRINIER, CYLINDER & WET MACHINES

"Horne" Friction Cutters

Fan Pumps

Rag Knives

Cone Pulley Cutters

Stuff Pumps

Roll Bars

"Horne" Calenders

Calender Rolls

Bed Plates, Etc.

ORDERS FILLED ON RECEIPT**GET OUR CATALOGUE**

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal

23 Scott St., Toronto

Sulphate Alumina

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, ===== MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y



127 BOARD OF TRADE BLDG., MONTREAL.

Agents for the United Alkali Co. of England

OFFER TO THE TRADE:

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.

F



VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leather. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Hawsworth & Sons Co., Limited
Mill Engineers and General Furnishers
551 St. James Street, - Montreal



STEEL PLATE WORK

Steel Penstocks, Steel Smoke Stacks, Smoke Connections, Steel Tanks, Refuse Burners, and all manner of Steel Plate Work.

Estimates promptly and cheerfully Furnished.

Sales Offices:

TORONTO

HALIFAX

ROSSLAND

VANCOUVER

THE JENCKES MACHINE CO., LIMITED.

EXECUTIVE OFFICE

60 Lansdowne St. Sherbrooke. Que.

PLANTS: Sherbrooke, Que.
St. Catharines, Ont.

THE PULP AND PAPER MAGAZINE OF CANADA

4.—No. 9.

TORONTO, SEPTEMBER, 1906.

{ \$1 A YEAR
{ SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

SUBSCRIPTIONS: Canada, British Empire and the United States, \$1 a year; to Foreign Countries, 5s. a year.

The Pulp and Paper Magazine is published on the first Tuesday of each month. Changes of advertisement should be in the publisher's hands not later than the 15th of the month and, where proofs are required, they should be sent by mail, not by post.

E. B. BIGGAR,
PUBLISHER

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

SODA FIBRE AND KRAFT BROWN.

All the developments of the past three years in the paper trade, the manufacture of Kraft brown papers is the most important. There is every prospect that this paper will oust rag paper from the field for most purposes. As mentioned in the article on Kraft paper elsewhere in this number, Kraft paper takes its name from its characteristic strength; but its strength is not its only recommendation. It is both strong and tough, and is therefore an excellent paper for wrapping purposes in mills and factories. One of the other important services it will render to the paper trade will be in providing the material for which makers of special water-

proof papers have long been looking, especially in papers for the lining of cases of goods where moisture needs to be excluded, and for insulating and weatherproof papers.

A representative of the "Pulp and Paper Magazine" has made a number of inquiries in the trade in Great Britain, and everywhere the demand for Kraft brown exceeds the supply. If half a dozen Canadian mills were engaged wholly on this paper they could not begin to supply the present requirements in England alone, and the call for it will be equally great the moment it is placed on the market in Canada.

The production of Kraft brown so far is practically a monopoly of the mills of Sweden, whose owners have kept the process as closely to themselves as possible. So far only two mills in England have obtained sufficient knowledge to make it successfully, and they are doing a good trade, although they do not yet produce the exact thing that has made the Swedish mills famous.

Kraft brown is made from pure soda fibre, and it is said that the peculiar yellow-brown of the paper is due to using the bark of the tree in digesting. This paper was first produced at the Munksjö Mills near Jönköping, and its discovery was the result of an accident. A batch of soda pulp was spoiled and was thrown out as waste, but after ly-

ing in the yard for some time the makers decided to put it through as wrapping paper.

The paper dealers who got this peculiar colored wrapping paper were eager to get more, and so the commercial production of Kraft brown started.

Canada is in a favorable position to take a prominent part in the world's future production of Kraft brown, and the sooner some of our enterprising manufacturers get their fingers in the pie the better it will be for them, and for the trade of the country.

The soda fibre branch of the trade has been a neglected department of the pulp and paper business of Canada. This will be apparent when we state that the book paper mills are, to a considerable extent dependent on foreign mills for their supply of soda fibre to mix with their own pulp. Instead, therefore, of exporting large quantities, as Sweden and Norway are doing, we are importing soda fibre, at a cost of about $2\frac{1}{2}$ cents a pound. Birch and soft maple make excellent soda fibre, and of these woods we have inexhaustible supplies. Another advantage we have is ample water power for the cheap electrolytic production of the chemical raw material. Then the yield of pulp per cord of wood when using birch and maple is greater than the yield of spruce, a cord of the last named producing 2,250 pounds, where a cord of birch yields 3,500 pounds. The more modern process of making soda pulp from the sulphates, as carried out in Scandinavia, greatly cheapens the cost compared with that by the plants now in use in Canada, so that the whole field offers conditions which the pulp and paper men of this country do not yet realize in view of the great change in

the trade requirements that are brought about by the introduction of Kraft brown. A sample of this new paper can be seen at the office of "Pulp and Paper Magazine."



Pulp & Paper Currents

Mr. Stewart, Dominion Superintendent of Forestry, who last summer visited Germany and France with a view of studying European forestry methods, came back with the idea that Canada would have to work out her own system. Valuable pointers might be obtained from European practice, but conditions were so different, that it would be unwise to take it as a sole guide.



Paper and manufactures of paper imported from Japan show an increase. In 1905 the value was £307,000; in 1904, £285,000; 1903, £203,000; 1902, £170,000. Exports of stationery in 1905 amounted to £72,000; 1904, £38,000; 1903, £30,000. Imports of pulp into Japan in 1905 amounted to 10,246 tons, value £107,000; in 1904, 10,226 tons, value £87,000; in 1903, 7,218 tons, value £64,000.



An Italian statistician has been figuring on the world's production of paper. In 1904 there were 2,780 factories in existence, with 4,189 machines, and a production valued at £80,000,000. The capital in the industry amounts to at least £200,000,000. The United States leads with a total production of 2,000,000 cwt., followed by Germany with 500,000 cwt., and Great Britain with nearly 14,000,000 cwt. France, Austria, and Italy follow in their respective order. The chance of Canada with its enormous

resources of as yet unworked forests
in the future.



The use of colored papers for house
decoration is becoming general in many
parts of China, where Chinese of the
wealthy class have adopted European
tastes. Manufacturers are advised that
papers representing landscape tapes-
tries, etc., would probably be best
sold, and besides catalogues,
they should send small consign-
ments of paper sufficient to decorate two
or three ordinary rooms.



Writing from Sydney on the paper
trade of Australia, J. S. Larke, Cana-
dian commercial agent, says it is ex-
ceedingly difficult for a mill to find a
market for paper in that country with-
out having a representative on the spot.
There are a number of British, Euro-
pean and United States firms represent-
ing and at a distance of ten thousand
miles negotiations would be too slow
to accomplish much. The contracts are
usually for three years and the terms
vary. The prices are to be quoted de-
livered at the stores of the newspaper
companies, the shipper is asked to suf-
fer the loss of all damage in transpor-
tation, and payment is made for only
usable paper. In some cases, too,
the mill is asked to hold in store a sup-
ply equal to two months at the disposal
of the newspaper company, to guaran-
tee regular deliveries. These terms are
demanded by all, but they are often
contested and complied with in an agree-
ment. There is much force in what Mr.
Larke says, not only because of the
omission of details regarding terms of
the contract and the length of time cov-
ered by these contracts, but because

there are many things relating to the
local conditions of trade and the indi-
vidual requirements of the buyer.
These can be studied and understood
by the man on the spot better than by
correspondence with the mill.



The possibilities for the manufacture
of wood flour should be studied by
Canadian pulp manufacturers. This
form of pulp is used by oilcloth fac-
tories and by dynamite and other fac-
tories, and Scandinavia exports large
and rapidly increasing quantities to
Great Britain and Germany. The lia-
bility of such mills to take fire from
spontaneous combustion has to be
guarded against, but this is a matter of
care. This industry is of quite recent
origin, and shows what field there is
still unexploited in the wood pulp in-
dustry. In 1901 Norway's export of
wood flour was 245,927 lbs., valued at
\$1.07 per lb., but by 1905 it had grown
to 5,292,980 lbs., valued at \$1.20 per lb.,
so that in this short time the quantity
sold has enormously increased, and the
price has also substantially advanced.
There are several factories already en-
gaged in this profitable new industry in
Norway.



The members of the Canadian For-
estry Association will realize the grave
nature of one of the problems they
meet to study when they hold their
convention at Vancouver. They will
pass through tracts of country where
the magnificent forest trees of British
Columbia have been blasted by forest
fires, lighted by careless campers, pros-
pectors or railway employees. One es-
timate is that a million dollars' worth
of timber has been thus destroyed in

British Columbia, while in New Brunswick the loss will probably make a greater aggregate, for in that province many farms and mills, as well as timber areas have been laid in ruins. Forest fires have also raged in North Ontario in the region of the Temiskaming & Northern Ontario Railway, while in Quebec there have also been serious fires. The governments of these four provinces should make a special investigation into the cause of these fires, and not only put into effect the penalties provided by their forest ranging laws, but see how far their own officials have been responsible for these terrible losses.



To celebrate the beginning of the fourth year of the "Pulp and Paper Magazine" a new design of cover was prepared, and appeared in our May issue. We have appreciated the kind things said of the magazine by readers, not so much because of the references to the magazine itself as because these kind words are a compliment to Canadian artists and paper makers. The first cover design of this magazine was made by a reputable firm in the United States, engraving from clay models being then in its infancy in Canada. Then, also, the coated paper used in the magazine was made in the States, the price and quality of the Canadian make not being up to requirements. Now we are able to say that all the paper in the "Pulp and Paper Magazine" is of Canadian manufacture, and the designing, modeling and engraving of the new cover are all the product of Canadian skill. The reader need only compare the current issues with those preceding May to judge whether the American or

the Canadian is the better. The paper of the current issue is made by Richardson & Ramsay, New Toronto; the cover paper from the Canada Paper Co., Windsor Mills; the designing and modeling of the cover title by Arthur J. C. Toronto, and the photo engraving by the Jones Engraving Co., of Toronto.



Forestry and Pulpwood

The scarcity of labor for the lumber camps is a problem for pulp-wood as well as others in the timber trade. Some Ottawa firms are offering as much as \$36 a month.

J. R. Booth, Ottawa, is fortunate this year in having a surplus of logs in his mills left over from last year. It is the first time he will operate on the Montreal River for pulp-wood.

The timber berth belonging to the estate of Grier situated on the Kipawa and known as berth No. 9, was sold at auction at Ottawa last month. The purchaser was G. A. Grier, of Montreal, who bid \$145,000. This is a very high price for an area of 44 square miles.

The summer convention of the Canadian Forestry Association will be held at Vancouver on the 25th, 26th and 27th of this month, the British Columbia Lumbermen's Association uniting with the Association on this occasion. Names and addresses will be given by H. Alexander, Secretary of the British Columbia Lumber and Shingle Manufacturers' Association; F. W. Johnson, President of the British Columbia Mountain Lumbermen's Association; Stewart, President of the Canadian Forestry Association and Dominion Forestry Commissioner; Gifford, Chief of the Forest Service of the United States; Dr. Judson F. C. Forester for the Province of Ontario; and Roland D. Craig, Inspector of Dominion Forest Reserves.

Mill Matters

fred West's sawmill at Cole's Island, N. B., was recently burned down, and the pulp-wood sawmill attached was destroyed.

The low water in the Ottawa River is troubling the pulp, paper and saw-mills of Ottawa and Hull. The E. B. McCy Co., are only able to operate their mill and sawmill at night.

Will Tierney has resigned his position at the Davy pulp mill at Thorold, and has gone to Riley, Maine, where he has secured the position of foreman with the International Paper Company.

The first full cargo of Canadian pulp shipped direct to France has been sent by the Chicoutimi Pulp Co. to Rouen. It consisted of 3,500 tons, and the sale was negotiated by Becker & Co., the well-known pulp merchants of London, England.

On the 18th August, at St. John, the question of postponing the sale of the Irving Sulphite Fibre Co. came before Judge Barker and Judge McLeod, the liquidators and the Eastern Trust Co. Each was represented by counsel. After hearing argument the Court ordered the sale of the pulp mill postponed until October 20, and the sale of the equity of redemption postponed until December 20.

It was reported last month that a branch of the Indestructible Fibre Co., of Messena, N. Y., would be built at Ottawa. A site for the mill buildings and an adequate water power had been secured, and a large part of the capital subscribed. We learn that this report is premature, as the American promoters are also looking over sites in North Ontario, especially one on the Blanche River at the foot of Long Lake, a region having plenty of pulp-wood, and now being made accessible by a branch of the Temiskaming & Northern Ontario Railway.

The sulphite pulp manufacturers of America held a meeting at New York last month following a previous ses-

sion at Boston. It is said that over eighty per cent. of the manufacturers of the United States and Canada were represented. It was proposed to form a new association binding the members under heavy penalties to submit duplicate bills of the sales of each, so as to detect violations of the agreement to observe the scale of prices and terms of sales. As to prices it was proposed to fix \$40 a ton delivered as a reasonable rate. Some objected on account of the obligations under present contracts, and no agreement was reached on this question.

Among important transactions in the China clay industry of England is the recent purchase of a new mine by the China Clay Co. This company, whose headquarters are at Manchester, now own or control the output of mines at Ruddell, Bojea, Colchester, South Nine-stones, Tronance and St. Austell. The new mine will enable the company to double its output, especially as it is equipped with the latest appliances for washing, preparing and refining the clay. This clay is specially adapted to the paper trade as well as for fine pottery. The English China clay seems to hold its pre-eminence in the paper trade, being superior to the United States product in fineness and color. The English clay is in reality a decomposed granite, and is noted for its uniform fineness. The cheap and efficient labor of Cornwall is, of course, an additional reason why the British producer can hold his ground in the markets of the world in this line.



NEW COMPANIES.

The Ottawa Pulp & Paper Company, with a capital of \$25,000 and headquarters in Montreal, has been incorporated. Chas. E. Read, W. G. White, Geo. H. Perley, F. W. Avery and W. M. Avery.

North-West Power Co., Ltd., has been incorporated under British Columbia charter with a capital of \$10,000, to

carry on the business of lumber and timber merchants and sawmill and pulp mill proprietors.

The Pacific Pulp and Power Co., Ltd., has been incorporated under British Columbia charter, with a capital of \$250,000, to carry on the business of lumberers and timber merchants, manufacturers and dealers in wood pulp and paper, and erect pulp and paper mills.



IMPERIAL PAPER MILLS.

The Imperial Paper Mills, Limited, successors to the Sturgeon Falls Pulp Co., have had to ask the forbearance of their creditors until fresh capital can be furnished. The present difficulty was precipitated by the action of the Dodge Manufacturing Co. and Mallory Brothers in pressing their claims, amounting in the first case to \$1,650 and in the other to \$133. The bank having limited its advances to \$700,000, it was necessary when these claims were presented to come to some new understanding with the bondholders. The bonds, as well as the stock, are nearly all in British hands, and A. W. Tait was sent to Canada to report on the situation last month. Mr. Tait met the Canadian directors in Montreal, and it is understood that as the result of the meeting he will recommend to the British capitalists the advance of cash required to meet the current claims of creditors. These claims, apart from the bank's claim only amount to about \$70,000, of which only about \$50,000 are actually trade debts. When it is known that there are 80,000 cords of pulpwood in the yards at Sturgeon Falls, not to speak of other material, it is not likely that there will be any hesitation about finding the means of financing the concern through its present obstacles. Mr. Tait left New York on the 13th for England.

The outstanding bonds of the Imperial Paper Mills, Limited, amount to \$1,500,000, of which \$1,000,000 pay 7 per cent., and \$500,000 are liens on the old company, and pay 6 per cent. The

fixed charges the company has to amount to \$100,000. The preferred stock amounts to \$1,000,000, and common stock to \$2,000,000.

Three members of the board of directors, I. B. Hosford, L. G. McCa and H. F. Frinkman, resigned some time ago, leaving the following as present directors: A. B. Craig, London; John Craig, Sturgeon Falls, Ont.; F. Truman, London; W. R. To Reading, England. William Tait is secretary, the head office being at 62 London Wall, London. E. C. John is managing director. The mills continue running pending the outcome of negotiations with the bondholders. The paper mill has been making news manilla, and has a capacity of 45 tons per day, while the output of sulphite pulp amounts to 50 or 60 tons per day. The sulphite fibre is, however, produced by the Northern Sulphite Mills, a subsidiary corporation with a capital of \$500,000, and running on lease to the parent concern at a rate of \$75,000 a year.

In the original construction of the mill by the Sturgeon Falls Pulp Co. a good deal of money was wasted in laying out the plant and power equipment and more money was sunk in marketing and selling pulp at a loss before paper making was started. This is said to be the result of sending out men from England who did not understand local conditions.

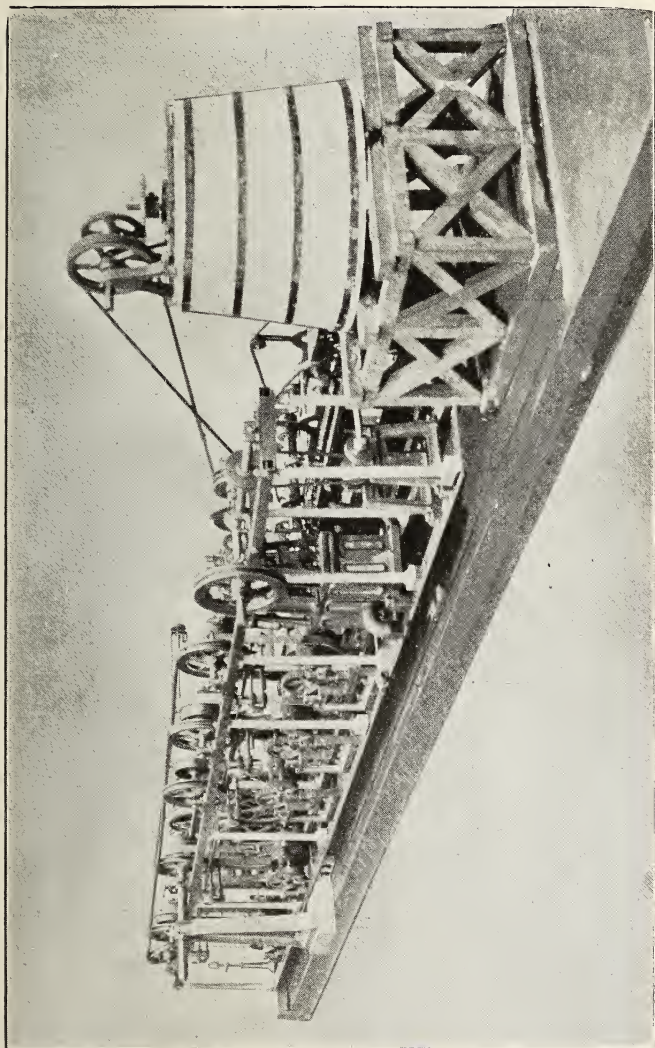


The U. S. Consul for the Province of Canton writes: The oversupply of paper, especially printing paper, accounts for the large decrease in imports this year. The trade, however, shows signs of improving, notwithstanding the fact that heavy machinery from England, many, to be used in the manufacture of paper, has recently arrived in this country. Extensive factories will be established by Chinese merchants and capitalists. Fatshan, a large and enterprising town situated about 12 miles southwest of Canton on the line of the Canton and Shui Railway.

The World's Smallest Paper Machine.

last year a brief reference was made to the miniature paper machine designed and built by T. J. Marshall & Co., of Stoke Newington, London, the original inventors and makers of the modern dandy roll. Since the first public

exhibition whose practical value for experimental purposes is only now beginning to be appreciated. That this may be understood it is only necessary to say that if someone desired to test a new kind of fibre for paper-making purposes,



General View From the Wet End.

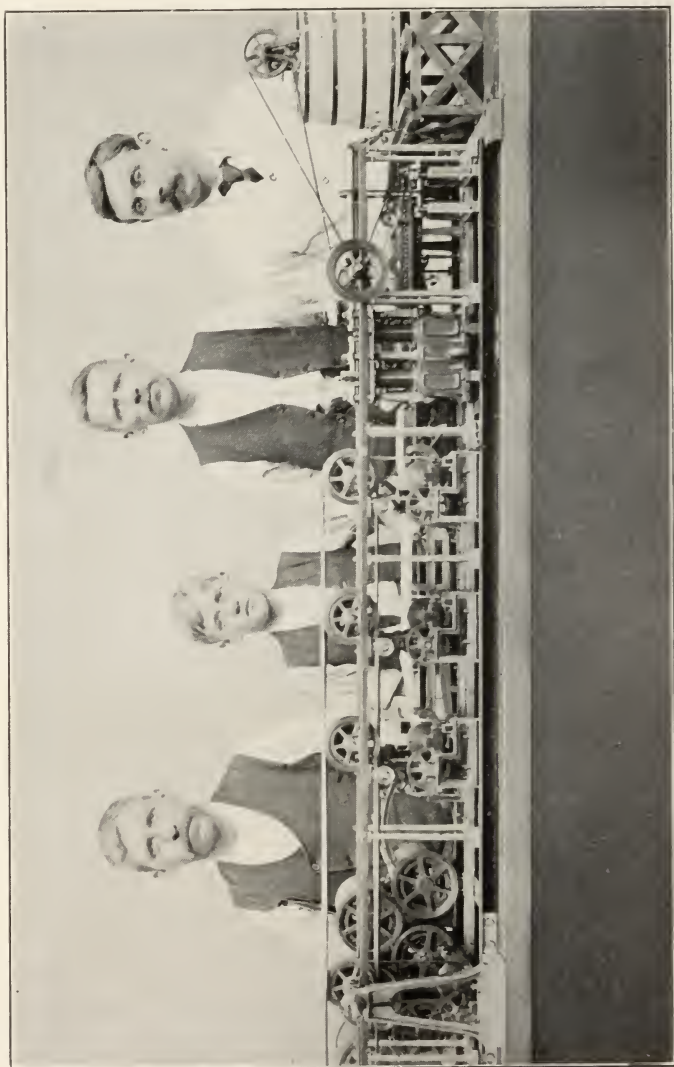
demonstration of its practical operation the machine has been the talk of the paper-making world. Though the latest working model of a paper machine in existence, it has proved itself to be not a mere toy, but a ma-

chine it would be necessary to provide sufficient pulp to run a batch through a machine in some mill, which, owing to the interruption of the regular mill work, would cost perhaps \$200 to \$250, whereas a run of pulp for this minia-

ture machine could be put through at a cost of not more than \$2.

The practical usefulness of such a machine in a university or technical school can thus be seen, and it is to be hoped that Canada will not be long without two or three of these machines.

ing the hours which it was in tion it was always surrounded crowd of intensely interested s tors, anxious to learn the A B C per making, and to carry off a s of paper made by the smallest m in the world.



View Giving an Idea of the Scale of the Machine.

which we feel sure the makers will provide at a price much less than the cost of the first model.

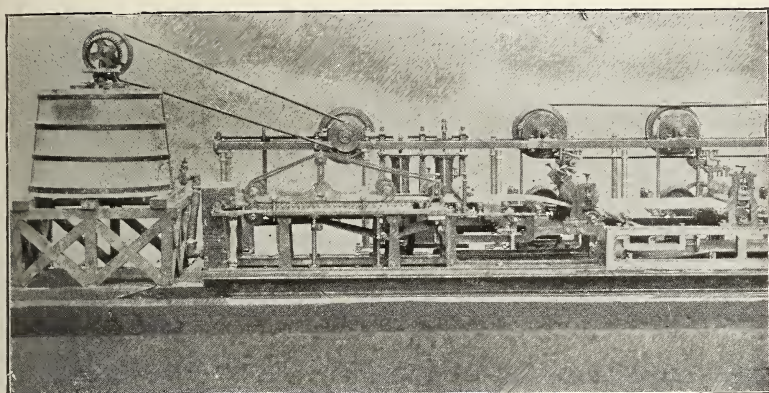
The writer saw this machine at the recent Printing and Allied Trades Exhibition in London, England, and dur-

As our readers will be interest a fuller account of the machine was given in the magazine last the following facts and illustrations presented:

This machine is admirably a

interesting purposes in paper mills; for making tests before proceeding with the machine, the same results being obtained as from an ordinary wide Fourdrinier machine. It will produce all kinds, including fine white, colored, blotting, and brown packing.

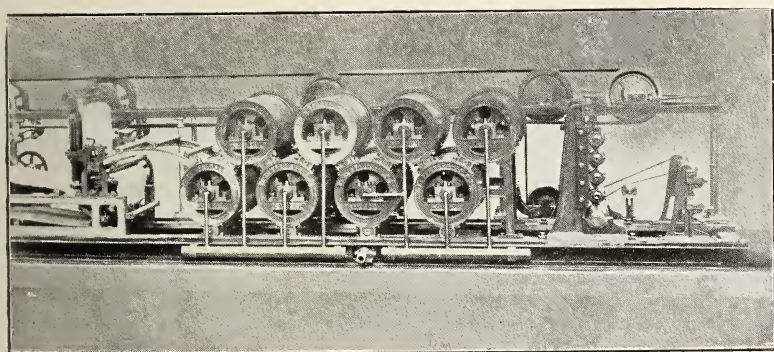
independent of everything else, being thus self-contained. It causes no nuisance, so could even be worked in a drawing-room, if required. It was recently running in one of the dining-rooms of the Hotel Cecil, London, on the occasion of the annual dinner of



The Wet End of the Machine—Front View.

The over-all measurements are 1 foot wide by 8 feet long, and the wire allows of a making width of $3\frac{1}{2}$ inches. It weighs about $2\frac{1}{2}$ cwt. and can be driven by hand, steam, gas, electric or any other power. A motor of one-

the Paper Makers' Association of Great Britain and Ireland, and everybody present was delighted with it. It has also been at the Battersea Polytechnic, London, for the benefit of the students at that institution.



The Drying End of the Machine—Front View.

h. p. will drive it, and the drying cylinders are heated by gas, consuming 5 feet per hour only. It can also be run by a one-tenth h. p. hot air engine, which consumes 36 feet of gas per hour. In the latter case it is quite

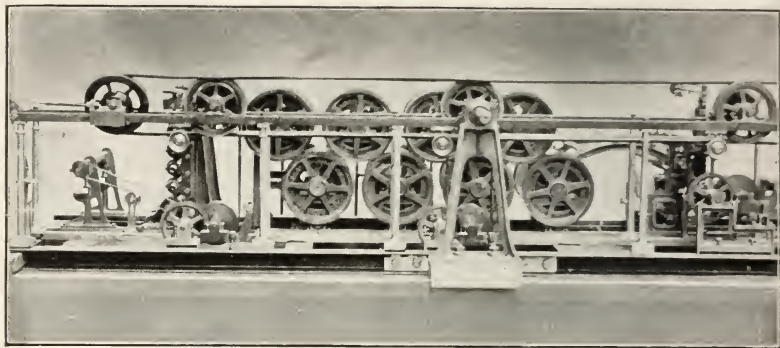
There are about 500 parts, besides about 1,000 bolts, nuts and screws.

The makers have had a reservoir with a capacity of 16 Imperial gallons for supplying the stuff chest fitted to the machine with a water tank imme-

diately over it for 20 Imperial gallons (about 25 American gallons) of water, but half that quantity is sufficient for a short run. There is provision for a hot air engine underneath for use where there is no electric current available.

tested on a wide Fourdrinier machine. This is another proof of the great of the machine for testing purposes.

The eight drying cylinders of machine, each 4 in. diameter by 4 wide on the face, are driven with

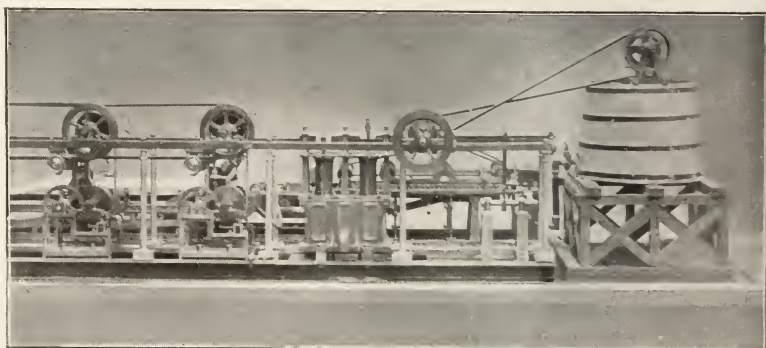


Back View of the Drying End.

On one occasion Messrs. Marshall & Co. made a piece of paper 160 feet long, which we must acknowledge is a very good length, and then they only left off because they had no more pulp.

At the annual dinner of the Paper

patent rope drive of Mr. White James Bertram, Ltd., of Edinburgh, coucher jackets and felts were made by Thomas Hardman & Sons, Ltd., Bury, England. The dandy rolls are a course made by the designers and



Back View of the Wet End.

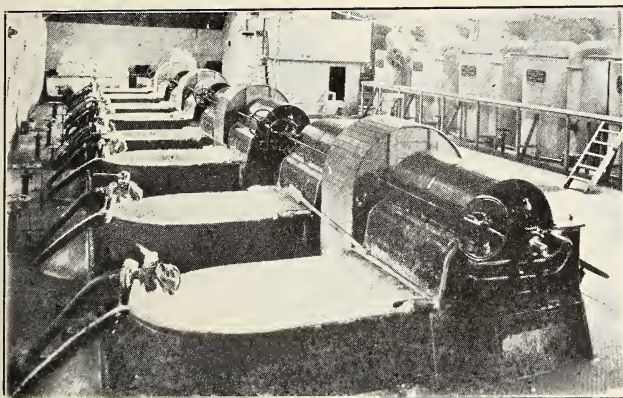
Makers' Association, already referred to, they exhibited some fibre from Somaliland, a 2-oz. sample of which was sufficient for producing about 40 feet of paper on the miniature machine, a quantity which of course could not be

ers of the machine, whose connection with the paper trade dates back many years, a record perhaps unique in the history of the paper industry. They bridge the gap between machine-made paper and the days of hand-made papers.

Results of Improved Machinery.

A travelling correspondent of the "Paper and Paper Magazine" recently visited the works of Masson, Scott & Co. Townmead Road, Fulham, London, makers of paper mill machinery. This company on removing from Battersea, London, to their present works have installed an up-to-date plant and the orders now being executed in their busy shops for mills in Great Britain, Scandinavia, and other parts of Europe, as well as India and the East, give evidence that British engineers are holding their own in the struggle. The precision and fine workmanship on some calendars now being turned out for a foreign mill make our correspondent as showing a calendar that would be hard for any

Scotland. It is a good example of what modern machinery will do to transform a mill from a losing concern to a dividend paying one. For years before the Carron Grove mill was re-equipped it paid no dividend on its preference shares, but after experimenting with one new beating engine supplied by Masson, Scott & Co., the Carron Grove mill put in others, until eight machines were installed. The result has been that 100 tons of fine printing papers are turned out of the mill per week, where only 70 were produced before. The immediate effect of this is that good dividends are now being paid and the preference shares have risen in value from £10 to £12.



American works to approach. The company's works are on the Thames, at Tottenham Wharf, and their new situation gives them facilities for shipping by water or rail to any part of the world. The establishment is equipped with gas and electricity for motive power, and has its own brass foundry, iron foundry and fitting shops as well as machine and pattern shops. The shops have their travelling cranes and all modern appliances for handling heavy work, such as steam hammers, tools worked by air compressors, etc.

The accompanying illustration shows a range of beating machines installed by Masson, Scott & Co., into the Carron Grove paper mill at Denny, Perthshire,

The Paper-makers' Circular of January and February last contained a full description of these beaters with diagrams of the results attained in comparison with the old machines in the Carron Grove mill. A brief summary of these tests is here given:

The first set of trials took place at Messrs. Thomas and Green's works, and the object aimed at was to ascertain the amount of power absorbed by the actual beating and circulation, and the instrument used for recording the results was the valuable dynamometer invented by Mr. Masson. This dynamometer gives you at once, and without calculation, the horse-power or foot-pounds at any period, whereas the indicator diagram

only gives it you for the moment the card was taken, and of course necessitates considerable calculation. The dynamometer records automatically on a card the horse-power by means of a movable pointer. In the trials referred to, when the card was taken off at the finish of the beating it was possible to see the horse-power absorbed during the whole of the operation.

Considering the subject as a whole it will be helpful to ascertain the total amount of power consumed by a battery of beaters under average work, and likewise to ascertain the degree of power consumed in overcoming the friction of the engine and shafting, as well as the total amount of power which the beaters themselves consume.

The plan adopted was to indicate the

engine with all the straps off and arrive at the power consumed in overcoming the friction of the engine shafting. The steam engine was shut down and the belts attached to eight Umpherston beaters only. The engine and these eight beaters then indicated in full work and the difference between the first diagram and the second gives the power consumed by eight Umpherstons. When these beaters had been tested with about one hour's run, the engine was again shut down and the eight belts taken off, the belts of the four Taylor beaters put on and tested for about one hour. The engine was again shut down and the belts of the eight Umpherstons put on and the four Taylors and eight Umpherstons were indicated together.

Summary of Results from Indicator Diagrams, I., II., III., and IV.

	Total Horse-Power Absorbed.	Power Absorbed by each Beater without Engine and Shafting.	Proportion of Power Absorbed by Steam Engine and Shafting for each Beater where all Engines are going.	Total Power Absorbed by each Beater, inclusive of its due proportion
	H.-P.	H.-P.	H.-P.	H.-P.
Friction of steam engine and shafting..	86.6	.....	.....	...
Eight Umpherston Beaters from Diagrams I. and II.	172.3	21.54	8.38	29.92
Four Taylor Beaters from Diagrams I. and III.	67.5	15.12	5.88	21.00
Eight Umpherston Beaters from Diagram IV.	152.3	20.20	7.89	28.09
Four Taylor Beaters from Diagrams II. and IV.	50.5	12.62	4.91	7.53
Total power required for friction of steam engine, shafting, and to drive eight Umpherstons and four Taylors—Diagram IV.	208.8	.....	.....	...
Mean of both sets of trials for eight Umpherston Beaters—Diagrams I., II., III., and IV.	157.3	20.91	8.13	29.04
Mean of both sets of trials for four Taylor Beaters—Diagrams II. and IV. and I. and III.	55.5	13.87	5.30	19.17

A comparison of the figures revealed the test shows that four Taylor Beaters which replaced eight Umpher Beaters, were found to do 25 per cent more work than the eight Umpher Beaters and required 111.8 less horse-power to drive.

For the purpose of arriving at the cost of beating we must make use of the first and fourth diagrams.

Computed from Indicator Diagrams Nos. I. and IV.

Power consumed in overcoming friction of steam-engine and shafting 27.9 per cent.
Power consumed by 12 beating engines 72.1 " "

—
100 " "

Round figures, therefore, we have for every 100 indicated h.-p., 28 h.-p. consumed in overcoming friction of engine and shaftings, and the balance of 72 h.-p. consumed in driving the beaters.

72 : 28 :: 18 : 7

Therefore, we multiply the figures in the second column of the summary by 7 and divide by 18, the result is the proportion of power consumed in overcoming the friction of the engine and shafting to be charged to each beater, worked out on the same principle as taxation of assessable value. By adding the figures in the second and third columns together, we get the total horse-power consumption of each beater, including the proportion of power consumed by friction of engine and shafting. This latter mentioned figure (see last column of summary) is the one to be used in calculating the cost of beating.

The percentage of power consumption, as set forth above, in overcoming the friction of the engine and shafting, may only be considered here in the light of the conditions prevailing in the fourth diagram.

For instance, supposing this engine was made to drive beaters so as to de-

velop its full power in 400 indicated h.-p., and from the same line of shafting, the friction of the engine and shafting being practically a constant quantity would still remain at 86 h.-p.

Since the normal h.-p. now developed, however, is 400, the relative figures work out as follows:—

Power consumed in overcoming friction of steam-engine and shafting 21.5 per cent.
Power consumed by beaters 78.5 " "

This is merely pointed out in order that it may be understood that the last two columns are not absolute figures, but only true to the conditions obtaining when the fourth diagram was taken, and tested so long as the total indicated h.-p. remains at 308.8.

With regard to the best method of calculating the cost of horse-power we may assume that the evaporative efficiency of the coal is equal to 8 pounds of water per pound of coal. We may assume also that the steam is superheated sufficiently to prevent any condensation in the steam pipes, and sufficient to ensure that the steam is only just saturated when it reaches the steam-engine. Under these conditions all the water evaporated in the boilers is effective. Supposing, therefore, it is ascertained by indicating the engine that each horse-power necessitates the use of 20 pounds weight of steam, we are justified in stating that each indicated horse-power would necessitate the burning of exactly 2½ pounds of coal. Given the price of coal delivered at the works, it is a simple matter to get the cost of per horse-power hour. We have in the fourth column of the summary the exact figure for horse-power hour per beater, and can easily calculate the cost for fuel per hour per beater.

Then, given the average output per hour of each kind of beater, we can determine the amount of coal necessary to supply power for beating one ton of stuff. The following table speaks for itself:—

Umpherston. Taylor.

Capacity of beater....	6cwt.	9cwt.
Average output per hour	3cwt.	6cwt.
Horse-power hour per cwt. of stuff beaten.	9.68	3.2
Coal consumed in beating one ton of stuff on assumption that one horse-power hour = $2\frac{1}{2}$ pounds coal .	484lb.	161 lb.

At the time the indications were taken Messrs. Lloyd were using the same class of stuff in the Umpherston as in the Taylor beaters.

In closing we may refer to other branches of Masson, Scott & Co.'s work. They are pleased at any time to advise on all matters relating to water softening and purifying, whether for boiler feed or other purposes. The Wilson Automatic Self-Cleansing Filters, Scott's Patent Oil Separating Plants, Edwards' Air Pumps, Circulating and other Pumps, Independent Condensing Plants—all these are incidental to the firm under notice, whose work in whatever department can always be relied upon to give complete satisfaction.

In a further notice of Masson, Scott & Co.'s works the Paper-makers' Circular adds:—

At the head of affairs there are men of both great practical experience and inventive skill. We consequently are never surprised to meet Mr. Andrew Masson in any part of the three kingdoms, as his wide technical knowledge and experience have been found invaluable by paper-makers in all parts. Mr. Scott is always busy with all orders for water treatment and purifying, in which he has had great experience and great success.

Amongst many other leading firms in whose mills installations have been recently made we might mention Grosvenor, Chater & Co.'s mill at Holywell, where there are five patent tower beaters, and five patent bleaching towers, which were installed by the firm under notice. The North Wales Paper Company's mill was fitted entirely with Mas-

son, Scott & Co.'s beaters, and the inevitable result was not only an economy in working, but a higher quality of paper. We might also add the well-known firm of Jas. Brown & Esk Mills, Penicuik, who have just completed a similar installation with best results.

We need not point out to readers of this journal the paramount importance of the question of beating from an economic point of view, but at the same time it is a question which cannot be discussed too often. This question is most admirably dealt with by Clay Beadle, F.C.S., in his treatise on "Theory and Practice of Beating." This treatise was published after Mr. Beadle had made careful notes of trials at the mills of Edward Lloyd, Limited, of Tynngbourne, and Thomas and Green, Soho Mills, Woburn-green. The writer at the time expressed his great indebtedness to Mr. Masson, of Masson, Scott & Co., Limited, for valuable assistance and information.



NEW USES OF PAPER.

Two university professors have discovered a chemical process by which they are able to restore burned documents such as notes, ledgers, and insurance policies. Documents which are no longer decipherable, and which crumble to ashes in ordinary hands, by this new process restored sufficiently to enable a perfect copy to be made. The restoration is made one leaf or sheet at a time, and the inventors are working night and day in a transept of valuable papers destroyed in the San Francisco fire. The documents thus restored are not durable, but last long enough to have a copy made. The courts are expected to recognize the transcripts as legal. The chemical formula which works this wonder is a carefully guarded secret.

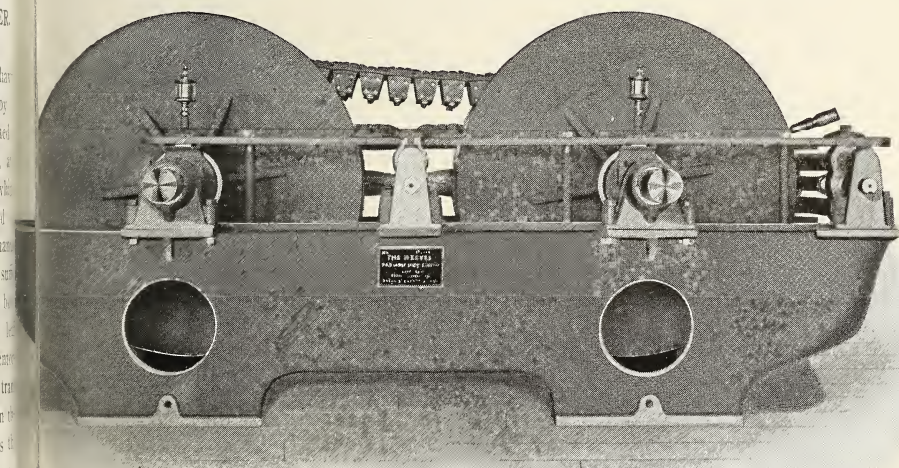
Among the novel uses to which paper is being put is the manufacture from it of bottles for milk and other beverages. These bottles, which are

chip that they may be thrown away for use, are so strong that a weight of 100 pounds will not crush them. The paper is treated with paraffin wax, which makes it impermeable, and also abates any taste of paper in the fluid. An especial advantage of paper bottles is their lightness. They weigh only as much as glass bottles, and are, therefore, more easily transported; the risk from breakage of glass is also prevented. It will be possible to turn a bottle out for a farthing. Special experiments have been made with these bottles in regard to their use for milk, and it has been found that sterilised milk, put into them, will remain sweet and free from bacteria for several days. In France, says the "Papier Zeitung," paper is being used in still another way, namely, for waistcoats. Whole suits, made of a certain kind of paper, are no

novelty in Germany, but they are for summer wear, while the French paper waistcoats are intended for protection against the cold, on the familiar principle that paper is a poor conductor of heat, as illustrated by the use of paper insoles in shoes to prevent cold feet. The French paper waistcoats are so light that one may be sent in an ordinary envelope, and they are said to be a source of great comfort in cold weather. The materials from which paper is made are also changing. Rags, the material formerly used, are growing more and more expensive, and cheaper materials are being used. Experiments with heather have had such good results that a large company has been formed in Germany for the purpose of making paper from the heather of the Luneburg moors, in factories at Wolfenbittel and Ulzen.



"The Reeves" Variable Speed Transmission.



is certainly true that no paper machinery appurtenance brought to the attention of the "fraternity" within the past ten years has enlisted such general

and favorable attention as "The Reeves" Variable Speed Transmission.

The speed control of the paper machine proper and of winders, cutters and

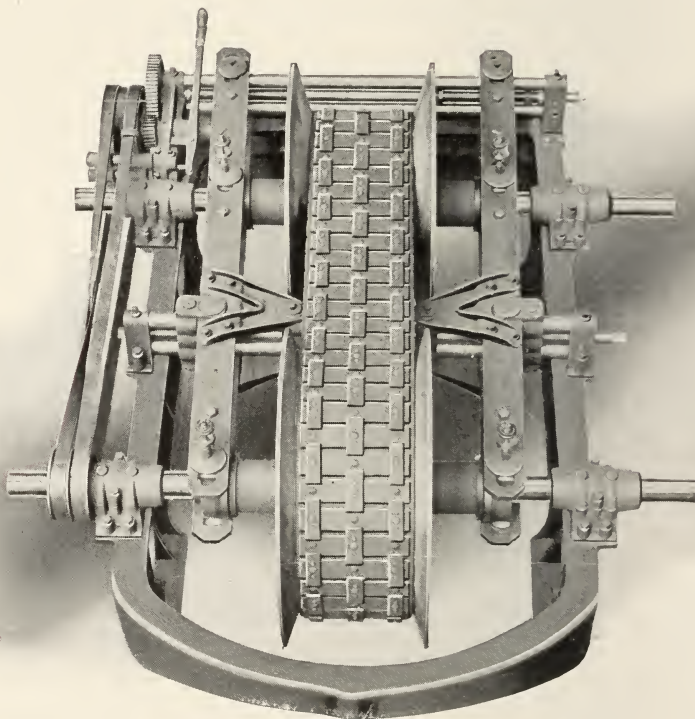
slitters incidentally has been since the dawn of the industry, the one omnipresent nightmare alike to the designing engineer, the mill owner and the machine tender.

It is, therefore, quite natural they Transmission with "open arms" and a brief description of this ingenious device we feel will be of vital interest to our readers. *

The conspicuous features, as seen in the cuts, are two sets of cone disks,

be seen, form a V-shaped groove which is fitted an especially designed belt, having its tractional bearing on edges instead of the bottom, as in an ordinary belt.

The operation is very simple. A set of disks acts as driver, the other driven. As the driving circumference one is increased the other is decreased the power is transmitted and the variation anything within the compass of two extremes.



spline-mounted on two parallel shafts; one disk of each set is attached to a peculiarly pivoted bar, which bar is operated by a screw in such manner as to bring together one set of disks as the other set is forced apart, the combination of bars and pivots being such as to preserve a substantially uniform tension of belt. This uniformity of tension is of the utmost importance and secures the perfect operation of our machine.

The inner side of these disks, as will

"The Reeves" Transmission is compact, reliable, steady, efficient, durable, easily installed, easily operated. It is these and more and that is the reason that within the comparatively short time it has been upon the market, over a hundred of the most progressive paper mills of the United States and Canada have adopted it. That is the reason it is manufactured under royalty in Europe. It is a dependable solution of the numerous problems of paper mill control.

CANADIAN PAPER IN THE WEST
OF ENGLAND.

The British correspondent of "Canada" writes:

We understand that serious efforts are being made to introduce Canadian paper for newspaper purposes into this district, and offers are also being made for paper of other kinds which it is thought ought to obtain a share of the English market. The importation of paper made in the Dominion into Great Britain is, of course, no new thing. In the nine months ended March, 1906, the value of paper exported from Canada amounted to \$1,565,863, and of this important business British customers took nearly two-thirds. A hopeful sign in connection with the figures is that they are a distinct advance on those of the corresponding period in 1905, and approximately double the value of 1904. Canadian paper finds an outlet in the United States, and in other countries as well as Great Britain, and a noticeable feature of the returns is that it is in the British market where our colonial friends are making most headway. The 1906 total for the nine months referred to is over three times that of the aggregate two years before. This is in addition to the supply of Canadian wood pulp, which is also sent over in increasing quantities.

In Bristol itself the various journals draw their supplies from a variety of sources. The printing is done from great reels, each containing several reams of paper, and Manchester, Cardington, Sweden, and Canada are the chief contributors. There thus have arisen opportunities in this district to test the Dominion article in contrast with its rivals, and I am pleased to say that the verdict of one of the principal users is highly favorable to the colonial product. The true running on the printing machine as well as its quality were eulogized, and with regard to its packing it is praised was quite enthusiastic. Since the Canadian reels are sent over cased in wood, the Canadian are protected by a substantial casing of millboard, which admir-

ably fulfils its purpose. I notice that the judgment of Melbourne newspaper proprietors who have tried the Canadian paper is also very favorable, so that users in the large district that can be served through the Avonmouth docks might find it worth their while to look into the matter. A Canadian agent has been sent over to see to the development of this business.

Those who adopt the Canadian reels and have had no previous experience with them, may be surprised at a feature which created some astonishment in an office where, previously, work had been confined to British-made papers. The peculiarity is that the Canadian reels (at least, of the brands about which I am now writing) are extremely unable to produce electrical phenomena. I was assured by practical men that this is not a drawback, yet it is worth mentioning because of the surprise which may otherwise be caused in the machine-room.

In other classes of paper and manufactures in which they bear a part, a very important trade is done in Bristol and the district. There are paper-making mills turning their attention to the better classes of paper in both Gloucestershire and Somerset, and in Bristol itself, the making of paper bags of all shapes and sizes, of envelopes, and of cardboard boxes for packing, employs a considerable number of hands and much ingenious machinery. Good work on a large scale is also done in color-printing. Canada is an importer of certain kinds of paper and of its manufactures and therefore there is an opportunity for a mutually advantageous reciprocity—the colony sending its reels of paper for newspaper printing machines, largely the product of its great forests, and the Mother-country (Bristol in particular) returning the compliment by ministering to colonial wants in a multitude of articles in which paper and cardboard are the basis.

[The correspondent's informant appears not to be aware that electricity in the working of paper is due to the state of the atmosphere,

and not to the make of paper. All wood pulp papers are more or less charged with electricity, especially in a dry cold air. Ed.]



TRADE ENQUIRIES.

The following enquiries relating to the Canadian trade have been received at Ottawa. The names of the firms making these enquiries, with their addresses can be obtained upon application to: "Superintendent of Commercial Agencies, the Department of Trade and Commerce, Ottawa," or the "Pulp and Paper Magazine," Toronto.

Quote the reference number when requesting addresses:—

1170. Wall Paper.—A Japanese firm wishes to be put in communication with Canadian merchants with a view of importing Japanese wall-paper into Canada.

1174. Wall Paper.—A London firm is open to represent Canadian manufacturers of wall papers suitable for the United Kingdom trade.

1207. Wall Paper.—A large Cape Town importer of wall paper desires to correspond with a Canadian manufacturer of this article.

205. Wood Pulp Boards.—A large firm of Hull timber merchants desire to get into communication with Canadian manufacturers and exporters of wood pulp boards in large quantities.

239. Compressed Fibre.—Enquiry is made for the name of Canadian firms in a position to export to London compressed fibre for which there is a considerable demand.

297. Paper Bags, Wrapping Paper and Newspaper.—A South African commission agent desires to represent on commission a Canadian manufacturer of paper bags, wrapping paper and newspaper. (White and colored.)

346. Wood Pulp.—A Manchester firm wishes to correspond with Canadian exporters of wood pulp.

398. Wood Pulp.—A firm in Great Britain desires to enter into correspondence with Canadian exporters of wood

pulp with a view to securing the agency for Great Britain and the continent of Europe, where they have good connections.

475. Wood Pulp.—A firm manufacturing envelopes in the city of Mexico, wishes to form a connection with some firm in Canada that is in a position to export wood pulp to this country.

482. Wood Pulp.—A Manchester firm asks for quotations of wood pulp, from Montreal from Canadian exporters.

744. Paper on Reels.—A Manchester firm wishes to purchase, or will act as agent for Canadian manufacturer of paper on reels for newspapers.

792. Paper.—A firm in Birmingham wishes to get in touch with a Canadian firm open to ship paper.

903. Paper.—A French manufacturer of satin white wishes to be placed in communication with some reliable Canadian firms possessing a connection among manufacturers of paper.

947. Agent.—An important paper mill of France desires to appoint an agent in Canada.

1013. Wood Pulp.—A Manchester firm will welcome correspondence from Canadian manufacturers of wood pulp.



A MODERN BALATA BELTING PLANT.

The manufacturing nations of the world still have to concede to Great Britain the premiership in both cotton and woolen fabrics, as statistics published in this journal have proved. A number of new spinning and weaving companies in the cotton trade in Lancashire is an evidence of the genius of the English people in this field of industry. The new mills are not by any means confined to plain fabrics, but include many specialties of more or less novel character.

One of the specialties in which British manufacturers have excelled in other countries is cotton belting. The particular kind known as "Balata Belting" has been taken up by the Irwell & T-

Rubber Co., of Salford, Manchester, who have applied their well-known energy and enterprise to this line with such success that their trade-mark is accepted as a symbol of the best quality.

Having ample capital, the Irwell & Eastern Rubber Co., have spent it freely and judiciously in equipping a plant of the most modern description, and have studied out improvements in the method of applying the Balata to the cloth which makes a perfect combination.

A representative of the "Pulp and Paper Magazine" paid a visit to the Balata Belting branch of the Irwell & Eastern Rubber Co.'s works in Manchester, and learned some facts of interest regarding this industry. Balata may be explained, is a cross between



BELTING.

rubber and gutta percha. The crude material is derived from a tree found chiefly in Venezuela. When applied to the manufacture of Balata belting it is first subjected to two or three boilings and then torn up in a "devil," a machine having a cylinder with six faced knives which cut the crude latex into shreds. It is then subjected to washings, and afterwards squeezed out sheets between rollers. Then the material is put into boilers and rendered by a naphtha solution into a semi-liquid state. It is now ready to be applied to the fabric of the belting. The fabric is a very closely woven duck manufactured in Lancashire expressly for this purpose, in widths varying from 36 inches to 60 inches, and is fold-

ed accurately by machinery, so that not only any width but any thickness of belt can be made from 2-ply upwards. Before the folding of the cloth the fabric in the piece is run through a machine in which by means of a pair of calendar rolls the semi-liquid Balata is pressed into the cotton duck till every fibre is permeated. The cloth is then carried on rollers through drying chambers where the solution is thoroughly dried in and the cloth made stronger and less stretchy. Foreign and other imitators of these beltings have not been able to accomplish the complete permeation of the cloth as it is done by the Irwell & Eastern Rubber Co. Each fold or ply is run through the machine so that no matter how many plies may be contained in the belt, it becomes practically a solid piece.

When the belt is made to the required thickness it is faced with a brown composition under heat and pressure in finely fluted rollers giving the fine parallel lines common to all Balata Belts. It is then finished by impressing into the face at given distances a trade mark which the members put before the world as the warrant of the highest achievement in a fabric belt. This trade-mark bears, in addition to the name "Lanco Balata," the emblems of the United Kingdom—the Rose, Shamrock and Thistle.

A great merit in the finishing of "Lanco Balata" Belting is in the stretching and truing process. For this purpose powerful hydraulic machinery (specially designed for the Irwell & Eastern Rubber Co.), has been erected.

This special machinery is capable of stretching a belt 550 feet long, any width, and up to twenty-four plies in thickness.

It is kept on tension in this stretching machine until thoroughly set, and when released is perfectly true and uniform in tensile strength throughout, and it so does its work that the stretch is equally distributed over the whole length of the belt.

The Irwell & Eastern Rubber Co., have also a special method of making a joint which not only gives a belt a uniform thickness, and so enables any machine driven by it to be run evenly and smoothly, but the belt has also shown by actual tests to be stronger at the joint than elsewhere.

As the Irwell & Eastern Rubber Co., who are also manufacturers of every kind of mechanical rubbers, are preparing to place the "Lanco Balata" Belt and their other products on the Canadian market, these facts will, no doubt, interest users of belting in the Dominion.



SULPHUR VS. PYRITE.

An article in the "World's Paper Trade Review," by Mr. Herman Frasch, president of the Union Sulphur Co., of the United States, has called forth a reply by Mr. Ernest A. Sjøstedt, chief metallurgist of the Lake Superior Power Co.

To present intelligently the comparative value of brimstone and pyrite for sulphite pulp-making it is essential, first, to clearly establish the fact that both of them can be made to yield suitable gas for the preparation of a bi-sulphite liquor of required strength and quality. In order to do this, Mr. Frasch proceeds to see what percentage of sulphur dioxide in the gas is obtained in burning brimstone in a sulphur burner and in roasting pyrite in a modern roaster. Theoretically, when burning sulphur or pyrite with the required amount of oxygen the following reactions are taking place:

$S + 2O = SO_2$; that is, all the oxygen combines with S to form SO_2 .

$2FeS_2 + 11O = Fe_2O_3 + 4SO_2$; or 8 parts oxygen out of 11 units combine with S to form SO_2 .

But when the oxidation is accomplished by means of air (containing only 21 volume per cent. of oxygen), the highest theoretical percentages of SO_2 obtainable are the following:

When burning sulphur (S): $21 \div 21 = 21.00$ per cent. SO_2 .

When burning pyrite (FeS_2): $21 \div 11 = 15.27$ per cent. SO_2 .

Comparing sulphur with pyrite, find, therefore, that the theoretical maximum yield of sulphur dioxide in the gas made from the former is 21 per cent. and that made from the latter only 15.27 per cent. In practice, however, the percentage of sulphur dioxide obtained from the brimstone gas is usually between 18 and 20; while in roasting pyrite from a modern roaster a 12 to 14 per cent. gas is readily maintained.

Enquiring into the relative value of the gases thus ordinarily obtained in practice from the two raw materials, in question, and taking for illustration 14 per cent. strong gas, we find that one made from brimstone will contain about 7 per cent. free oxygen, while one obtained from pyrite contains less than 2 per cent.; and, as an excess of oxygen is objectionable (tending to form sulphates in the cooking liquor), the advantage of pyrite gas as compared with brimstone gas is obvious.

It is true that when burning pyrite in a burner of walnut size in the old-fashioned system the gas usually averaged only 8 per cent. sulphur dioxide, and that such a gas did not prove as economical as one of greater strength. But even with such a weak gas, a satisfactory bi-sulphite liquor can be made, if only the absorption system is of ample dimensions to absorb the water sufficiently. Our own experience is that, with a modern system and with Lake Superior water, an even 12 to 14 per cent. gas is more advantageous and economical than the production of the desired sulphite liquor than a richer gas. Also, the gas of this strength, made from pyrite in our roasting and gas-cleaning plant, gives better and more economical results than that made from brimstone in sulphur burners.

The saving of power in driving pumps in connection with a concentrated gas (which has been largely upon) is so insignificant as

ably worth considering; and as for
 ing at the highest concentration pos-
 sible in the manufacture of a sulphite
 liquor, every sulphur maker knows this
 to be poor practice. In order to obtain
 the right proportion between free and
 combined acid in the cooking liquor, it
 is true, as stated, that a reasonably
 strong gas is required; but a very con-
 centrated gas is liable to cause subli-
 mation of sulphur, and this sublima-
 tion also limits the concentration of the
 gas. What we want is a liquor with a
 total of about 3.5 to 4 per cent. sulphur
 dioxide; and such a strength we ob-
 tained, readily and cheaply, from a gas
 containing 12 to 14 per cent. SO_2 .

The possibility of producing a suitable
 gas equally as well from pyrite as from
 brimstone now having been shown (and
 this fact also being well known to the
 sulphite pulp makers on this con-
 tinent, who can speak from experience),
 I will compare the two raw materials as
 to cost.

Pure pyrite contains 46.67 per cent.
 iron and 53.33 per cent. sulphur; and
 brimstone, about 100 per cent. sulphur.
 Consequently one ton of pyrite corre-
 sponds in sulphur content to 0.533 ton
 of brimstone. However, pure pyrite de-
 posits are not found in nature, the com-
 mercial product generally containing
 from 45 to 50 per cent. sulphur; whereas
 commercial brimstone, usually, is 98 or
 99 per cent. pure. A ton of brimstone,
 therefore, equals in sulphur value from
 2.0 to 2.2 tons pyrite. At present quota-
 tions, pyrite fines with 45 per cent. sul-
 phur at 10 cents per unit, would cost
 \$50 per long ton; consequently, the
 sulphur contents in such material would
 cost at the rate of \$10 per long ton;
 while the Louisiana brimstone is quoted
 at \$22.25. This is a difference of \$12.25
 per ton in favor of the pyrite. True,
 against this we must place a number
 of sundry expenses, such as the differ-
 ence in losses, in cost of labor, in power,
 in water, in cost of plants, in freight
 charges, etc.; but, notwithstanding, this
 under-rated article can generally bear it
 up. These items, however, will differ in
 each particular place, and will thus pro-

duce a different balance sheet in each
 case, and as no general argument,
 therefore, would here be sufficient or of
 any real value, a definite instance has
 to be presented. Our own case may,
 therefore, be accepted as an illustra-
 tion:

The brimstone used at Sault Ste.
 Marie came from a Louisiana mine, from
 which point the freight rate amounted
 to \$7.87 per gross ton; and at the time
 referred to brimstone cost us \$27.25 per
 ton f.o.b. here. The pyrite came from
 the Helen mine property, Michipicoten
 (where large pockets of granular ore
 are found, containing about 47 per cent.
 sulphur); and the low freight rate from
 this place, together with the cheap min-
 ing, would make it a profitable proposi-
 tion to deliver it to the roasting plant
 at \$5 per ton (or about 11 cents per
 unit).

During the trials referred to, about
 3,000 tons of pyrite and 375 tons of brim-
 stone were used, thus affording us an
 opportunity for obtaining accurate data
 for comparison. The roasters used for
 treating the pyrite are of our own modi-
 fication of the McDougall type. For
 burning brimstone we used ordinary
 cast-iron sulphur furnaces.

Omitting all details, it suffices to
 state that, in our practice, we found that
 on an average 2.25 tons of our 47 per
 cent. pyrite equal in efficiency and in
 amount of liquor and pulp produced one
 ton of brimstone. In roasting 22.5 tons
 of pyrite and burning its equivalent of
 ten tons of brimstone per day, our daily
 expenses were given as herewith:

	Pyrite	Brimstone.
When Burning.		
Labor, about	\$ 20 00	\$ 8 00
Steam for drying		
pyrite	10 00	....
Power, water and		
light	5 00	2 00
Repairs and sun-		
dries	9 00	1 00
Depreciation of		
plant, 10 per		
cent	15 00	1 50
	<hr/>	<hr/>
	\$ 59 00	\$ 12 50

Material, 22.5 tons		
pyrite at \$5	\$112 50	....
Material, ten tons		
brimstone at		
\$27.25	272 50	
Balance in favor of		
pyrite	113 50	....
	<hr/>	<hr/>
	\$285 00	\$285 00
	<hr/>	<hr/>

This means a saving of pyrite at the rate of \$11.35 per gross ton sulphur used which in a fifty-ton sulphite mill would alone amount to about \$30,000 per annum.

To assert as a general maxim that "American mills would not and could not use pyrite, even if they were in a position to obtain it free of cost," is, therefore, an exaggeration. In this connection, one of the greatest American sulphur experts wrote us some time ago as follows: "The reason for not using pyrite in other American mills is simply the scarcity of pyrite. In Europe we have, in the last two years, introduced seventy pyrite burners in twenty different sulphite mills. Everywhere where pyrite burners can be had at a reasonable price pyrite burners are installed in place of sulphur burners."

The truth is that each of the materials in question has its legitimate place; and local conditions only can determine which one of them will be the cheaper and to be preferred at any particular mill. It may be true that "the general brimstone situation is secure as far as supply and prices are concerned"; but it is even more certain that any sulphite pulp mill owner who has a good pyrite deposit not too far from the mill, or who can contract for his pyrite requirements at the usual trade quotations, for even half a dozen years, possesses a valuable asset, and should not delay in replacing his sulphur burners by modern pyrite roasters.

Beside producing a cheap (and, in every respect, a suitable) gas, the pyrite also leaves a residue (the "cinders," which contain some 50 to 60 per cent. iron, and from 1 to 5 per cent. sulphur), and which, even if it has to be further

roasted and briquetted, always has value, as it can be used, and generally is being used abroad, as a mixer either in the blast furnace or in the puddle or open-hearth furnaces.



PULP PROPOSITION IN PRINCE ALBERT.

Editor "Pulp and Paper Magazine."

Sir,—I am in receipt of your request for information concerning the suitability for pulp and water-power. It is not easy to get exact information; there has been no water power developed as yet; but there is a fall, or rather a number of small falls about seven miles down the river known as Falls.

Willis Chipman, the engineer, looks over the ground.

As for the wood, perhaps, I had better quote from a letter written by George Moran, special correspondent of the "Chicago Chronicle:"

"Primarily Prince Albert is a lumbering centre. Spruce, larch and poplar forests extend for hundreds of miles to the north. There are 1,850 sections of forest immediately tributary to Prince Albert. Lumbermen from Minnesota are finding these limits a magnificent field for speculation and are rapidly assimilating what remains of the timber."

"In the immediate neighborhood of the town are five large mills whose output this year will aggregate 60,000,000 feet."

"The immense area which these mill woods now cover are a standing invitation to Eastern paper men."

"No town in the West has a more abundant water-power. . . . Two canals enter the Saskatchewan River in the proximity to Prince Albert and one, at least, of these can be utilized for manufacturing purposes."—(From the "Chicago Chronicle," June 17th.)

I trust this will be of some service to you, and will be happy to give you further information.

Yours truly,

F. C. McGUIRE,
Secretary Prince Albert, Sask.
Board of Trade

KRAFT BROWN PAPER.

(From Die Wochenblatt.)

—

the line of Swedish paper products we lately find the name of the often mentioned Kraft-papier, a term adopted by Swedes from the German, meaning "strong paper," because of its special strength and toughness. The paper was originated scarcely twenty years ago. The invention was made by an accident. A Swedish "cellulose master," as they call the cook, was about to reject a boil of soda pulp in the waste department because the stuff was not boiled into as soft a state as usual. The wood pieces were too hard for allowing the rubbing into particles between the fingers. But the technical mill director desired to save something good out of the stuff and placed the half boiled wood on the kollergang, or edge runner, in order to get some sort of stuff that would be good enough for making a cheap wrapping paper for mill use. Contrary to all expectations the product made from the spoiled boil proved so very firm and strong that astonishment was supreme. No trials were ordered at once and samples distributed. Notwithstanding quotations of very high figures, unusually large and regular orders were received, so that it became necessary to make arrangements and regulations at once for an increased production of the new article. In this manner the making of this excellent product was started. The excellent quality, however, has caused excessive and spurious imitations at reduced rates. The process is continued to this date on the principle of the supposedly spoiled boil. The essential road to success exists in the boiling of the chipped pieces of wood in lengths of seven-eighths to 1½ inches into such an imperfect state of saturation that the chips can be parted by the hands only by using the finger nails. For making the best sheet of Kraft-papier it is required that the fibre

should not be cut into short parts and bruised, and thus unnecessarily weakened. To that end the fibre preserving kollergang renders the best service and has no equal. It preserves the fibres in their most desirable lengths and separates them without crushing and destroying their tensile strength. Frequently over fifty of these machines are running in one mill. Attempts are made of late to replace the good results of the kollergang by installing beaters with granite stone rolls, also twin beaters with stone and bronze rolls in one trough, and finally by applying the modern disfibring and kneading machines—all for the sake of saving time and labor at the expense of the paper's strength. In the boiling process the cheaper sulphate lye is now used, substituting the soda lye. The coloring of this strong wrapping paper, or sealing paper, as the English call it, is generally performed by the method of boiling with some additions of brown earth colors or with lamp-black, iron vitriol and aniline. Details of the special manufacturing process are generally kept strictly secret. The author of the foregoing remarks adds: "After having formerly described the process of making Swedish Kraft-papier, I wish to express myself here-with on German Kraft-papier. "After making Swedish Kraft-papier of the above 7,000 m. tearing length, I succeeded in making Kraft-papier in Germany of 12,000 m. I distinguished four kinds: First, Adansonia paper; second, manilla; third, rope; fourth, sulphite manilla. "First—Adansonia paper, I made in the following manner: The bark was cut on the rag cutter and boiled with 5 per cent. of caustic soda under 2 atmospheres of pressure for twelve hours. The beating was performed on a hollander provided with a grooved stone in place of a bed plate, and having a roller supplied with dull broad bronze knives. The grinding was continued during four hours, allowing an open space between roller blades and bed

stone—continuing for one hour after lowering the roll.

"The knot catcher plates had wide openings. The stuff was well shaken on the wire for the purpose of producing a good felting quality. Two dandy rolls were placed between first and second and second and third suction boxes. The paper was made in a slow rim and was well dried to prevent wrinkles. Since the paper had been made of a brown color, according to Swedish custom, the impurities in the sheet that could not be eliminated by washing were scarcely observable. The loss of material, however, amounted to about 50 per cent., and the cost of raw stock being 18 marks per 100 kilos the enterprise proved too expensive, and the paper could only be applied for certain specialties requiring extra strength.

"Second—Manilla Kraft-papier, made of manilla rope shortened on the cutter and by hand, prepared as usual with a strong soda lye and by prolonged boiling under five atmospheres of pressure. The half stuff was well washed and beaten with dull knives, requiring over twelve hours. The work on the paper machine was performed like that for making the Adansonia stuff, but the wire was raised higher near the lower coucher for the purpose of obtaining increased firmness in the cross direction. This sort of paper should not leave the machine in a very dry condition.

"Third—Kraft-papier of hemp and linen fibres is mostly produced from spinning waste cordage, sail cloth or coarse cotton drilling. An addition of some sulphite fibre produces a good feel. The boiling requires 5-6 atmospheres pressure, and in case of tar being present in the rope the alkaline must be supplied in the required strength. Boiling time and strength of lye depend upon the nature of raw materials.

"The dark violet shade is preferably brightened by white fibres; a long cotton fibre is very desirable; the same is added shortly before emptying the beater. Good washing and careful beat-

ing with knives of medium thickness with rounded off edges have to be formed according to requirement.

"Fourth—The German Krait-papier made of 50 per cent. sulphite, 30 per cent. manilla and 10 per cent. of cotton would equal the tearing quality of 70 m. of the Swedish paper. In both cases the quality or strength depends upon the imparting of a certain weakness to the boiled stuff. The boiling is performed as usual in the Mutsche process by indirect steam. After charging the lye of the first boil, second addition to the boiler consists of pure water in place of lye, and boiling is continued under two to three atmospheres of pressure. After a few hours the boiler can be emptied. The discharge shows a kind of brownish low sulphate. The manilla stuff can be prepared as half stuff, so that the same may be finished in the beater the time when the previously prepared half stuff is ready for being discharged. In place of manilla a good class of spinning waste may be used. I have obtained good results by adding waste branches of wood as they are rejected from a sulphite boil, but the pieces must be well crushed in the lergang or beater, and, finally, they must be refined. The well refined stuff runs into stuff boxes, while the coarser parts of fibres that have been retained on the sorting table are beaten until they are in a condition to be admitted in the stuff box or beater.

"Practical experience must teach the essential knowledge of the boiling process, which differs according to the condition of the raw stock, and here, the rule of a good cook prevails. One must be able to concoct from a material a highly satisfactory preparation."



The pulp mills at Buckingham, are closed down. The Quiatchewampulp mills, after a shut down, started up again; but the Perini mill is still idle.

TORONTO EXHIBITION.

—

There are no doubt some features of the Canadian National Exhibition that open to improvement, but the show of 1906 may fairly be recorded as the best ever held, and as a permanent annual fair it is doubtful if any country in the world can produce a better all-round display of manufactures, live stock, grain, dairy and apiary products or produce of the soil in general. The extensions to the building exhibiting presses of manufacture has made that much what the friendly critics of the institution maintained it could be made, one of the most attractive and instructive features of the whole show. Moreover, the midway has been kept clean. Together Manager Orr and his co-directors have well earned the praise bestowed on them for the improvements made since he has succeeded to the management.

The only pieces of machinery in the Press building relating specifically to the paper trade were two envelope machines from the establishment of Davis & Henderson, manufacturing stationers, Toronto. These machines were in operation turning out envelopes at the rate of 5,000 per hour. These and some printing presses and ruling machines were watched with much interest by the crowds.

Conspicuous among the features of the machinery hall was the exhibit of the William R. Perrin Co., Limited, Toronto, manufacturers of filter and hydraulic presses. The firm did not take all the space they required at their disposal, and did not display all the machines intended. Prominent in their display was a large hydraulic die press with pump and accumulator. This press filled a long felt want among manufacturing jewellers and others requiring heavy die work. It is very substantial—built, having a capacity of 400 tons, weighing in all over 7,000 pounds, the cylinder being a semi-steel cast-iron with 4½ inch polished steel rolls, the other parts equally substantial.

The pump in connection was a triple hydraulic, capable of carrying a pressure of 5,000 lbs. to the square inch, the accumulator being used to bring the pressure to bear on the press instantaneously. The above press, with a pump, was sold during the exhibition to Messrs. G. H. Lees & Co., manufacturing jewellers, Hamilton. There was also displayed a smaller die press of 75 tons capacity; a veneer press for piano key boards, which was also sold. They also exhibited knuckle joint presses. The Perrin Company build all kinds of hydraulic pumps and presses for pulp and paper mills. They recently began the manufacture of the Harris Patent Power Hoist and Carrying Machine, having arranged with the C. S. Harris Co., Rome, N. Y., to control the manufacture in Canada.

The Dominion Belting Co., of Hamilton, Ont., had three pyramids of their patent belts, decorated with the maple leaf. The fabric of these belts is made on the company's own formula, and the stitching is done so that each row of lock stitch is independent of the others. The fabric is waterproofed so as to resist water, steam or oil; and is made into an endless belt without joints.

The Canadian Rubber Company, of Montreal and Toronto, had a wonderfully varied display of mechanical rubber goods, rubber fabrics, boots and shoes, and rubbers for carriages and automobiles. This Company's rubber belting, deckle straps, printers' blankets and other supplies for the pulp, paper and printing trades are well known to readers of this magazine.



The Niagara Peninsula bids fair to become a second Holyoke. The Lincoln Paper Mills Co. expect to be in operation at the Lybster mill next month, and a Buffalo concern has written for terms on which they can locate in the old paper mill at Merriton. It is not yet disclosed whether or not the Buffalo concern's proposed branch is in the paper line.

PULP MARKETS.

Toronto, 17th Sept., 1906.

Again the trouble of low water in the rivers of middle and eastern Canada has become a serious one for pulp and paper manufacturers. The Ottawa river is lower than it has been for 35 years, according to statements of river men, and nearly all the mills on that river and its tributary streams are affected, as are some in Quebec. The advent of the showery season is, however, looked for hopefully. Owing to the attractions of the Canadian North-West and the demands of the big railway projects, labor is scarce, and higher prices are being offered for skilled woodmen than ever known in the history of lumbering. This adds to the uncertainty of the pulp-wood situation. Though some of the mills are well supplied with stock, it would cause no surprise to see an advance in prices.

Prices may be quoted as follows: Ground wood delivered, per ton, as to

quality, \$17 to \$20; pulp boards, \$35; sulphite pulp, \$35 to \$40.

Prices in New York are quoted the "Paper Mill" as follows: Ground wood delivered at mill, per ton, \$22. Small demand prevails for chemical fibres. Prices are: Domestic bleached sulphite, $2\frac{1}{2}$ to $2\frac{3}{4}$ ¢; domestic unbleached sulphite, \$1.85 to Mitscherlich unbleached sulphite, to $2\frac{3}{4}$ ¢; foreign bleached sulphite (Y. or Boston del.) \$3.25; to \$ foreign unbleached sulphite, \$2.2 to \$2.40; domestic soda fibre, \$2.20 to

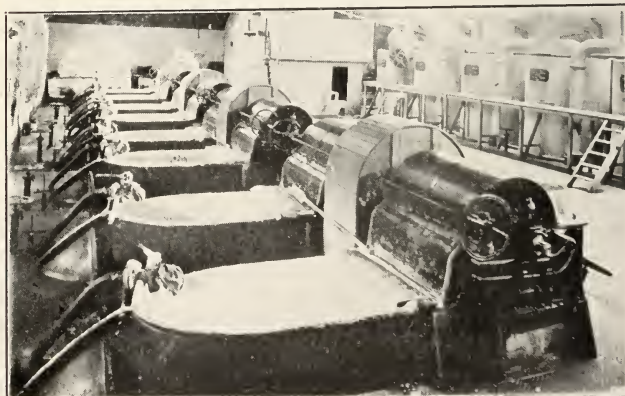
In papers there is a large turn but dealers and makers complain prices. News is quoted in Montreal \$1.85 to \$2 per cwt.; No. 1 Manilla to \$3.25 per cwt.; No. 2 Manilla, to \$2.70; brown wrapping, \$1.90 to



Hugh J. Chisholm, President of International Paper Company, has returned from his European tour.

Masson, Scott & Co., Limited

Paper-Makers' Engineers



SPECIALITIES

Patent Machinery for Bleaching and Beating.

Strainer Plates. Closing Strainer Plates.

Sole British Agents for

Robert Dietrich's Kneader for Pulp and Paper Stock

MASSON, SCOTT & CO., LIMITED
CORONATION WHARF, FULHAM,
LONDON, S.W., = ENGLAND



BELTING.

Contractors to

The Admiralty, War Office, India Office, and the leading Railway Companies of Great Britain.



BELTING.

IRWELL AND EASTERN RUBBER CO., Limited, Manufacturers of

"LANCO"

BALATA BELTING

This is a genuine article, and is GUARANTEED to be equal in every respect to the best Balata Belting at present manufactured.

Nothing better in this class of Belting can be had, and it is specially recommended for heavy and difficult drives. Everything in connection with this Belting is of the very best quality.

IT STRETCHES LESS THAN ANY OTHER BALATA BELTING.
and is without doubt the most reliable of its kind.

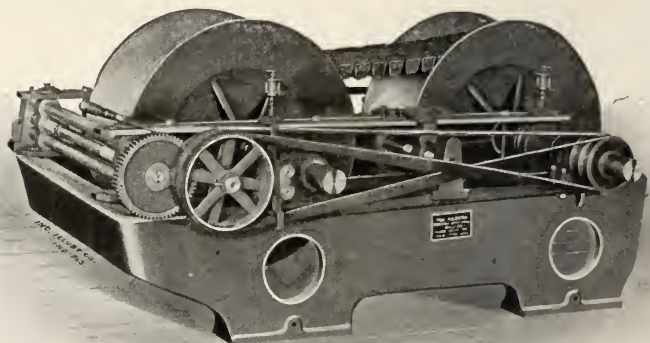
Samples and Quotations may be had from our Works.

ORDSALL LANE, SALFORD, MANCHESTER.

Telegrams—"PARA, MANCHESTER." A.B.C. Code - 5th Edition.

WAIT!

Don't Turn Another Page Here It Is



The Much Talked of "THE REEVES" Variable Speed Transmission

The one practical device for regulating the speed of the paper machine.

It everlastingly gets away from the nerve racking old true cone, in whatever form it seeks to disguise itself.

There is absolutely no shifting of belt.

It is made in sizes to drive anything from a winder to a 140" Fourdrinier.

Any speed within its extreme range of variation may be instantly secured and the changes effected without breaking or stopping the paper sheet.

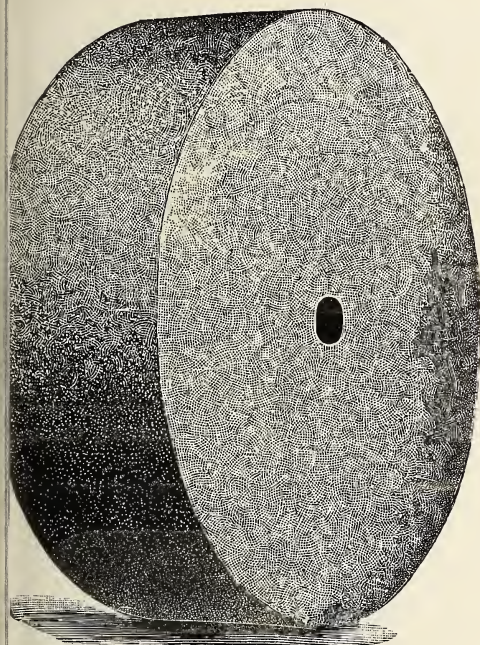
Recommended and adopted by the largest and most progressive paper mills in America and Europe.

Send for Paper Machinery Catalogue To-day

REEVES PULLEY COMPANY

COLUMBUS, INDIANA, U.S.A.

German Grindstones



Wood
Grindstones,
Wood Pulp
Refiner
Stones,
Edge-Runners
French
Millstones

Artificial Emery and Quarzstones

Stones of all kinds used in Wood Pulp and Paper
Manufactories.

Six Own Quarries at
Wehlen-Zeichen and Langenhennersdorf (Saxony)
Neuland and Goldbach (Silesia) Hoffnung (Bohemia).

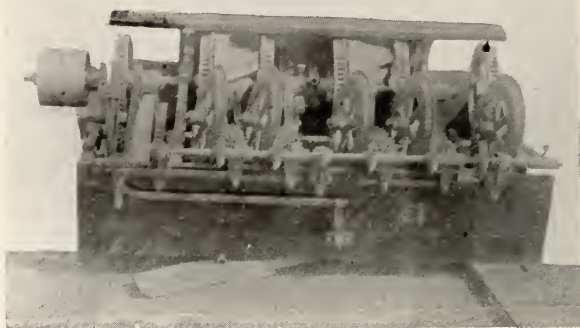
GEBRÜDER ISRAEL

PIRNA-ON-THE-ELBE (SAXONY)

Oldest Factory for Wood Grindstones in Germany.

Established 1866.

The Moreau Pulpwood Barker



Capacity, 3 Cords per hour with 2 men and 6 horse power

It can be run the year round in dry, green or frozen wood.

The Real Machine which takes only 16 to 18 per cent discount of the wood and saves money.

WRITE TO-DAY FOR FURTHER PARTICULARS.

The Moreau Barking Machine Co., Ltd

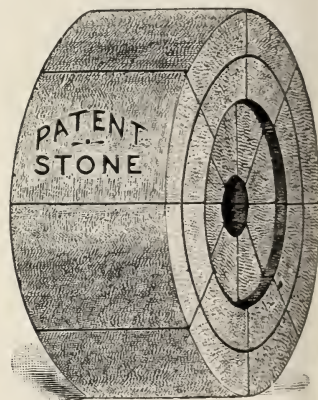
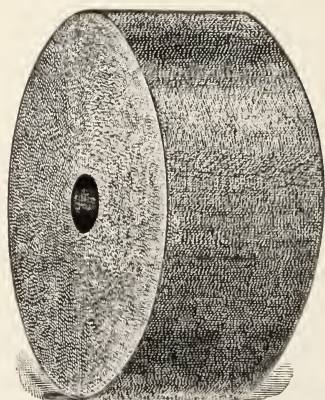
C. MANSEAU, Selling Agent for U.S. and Canada, Mitchell, Quebec
RELIABLE AGENTS WANTED.

PULP STONES

ENGLISH, GERMAN and SCANDINAVIAN

ALSO THE

PATENT UNIVERSAL



the construction of which gives to it advantages not found in the one piece stone

Let us tell you about them

JEAN FREESE

132 NASSAU ST., NEW YORK, U.S.A.

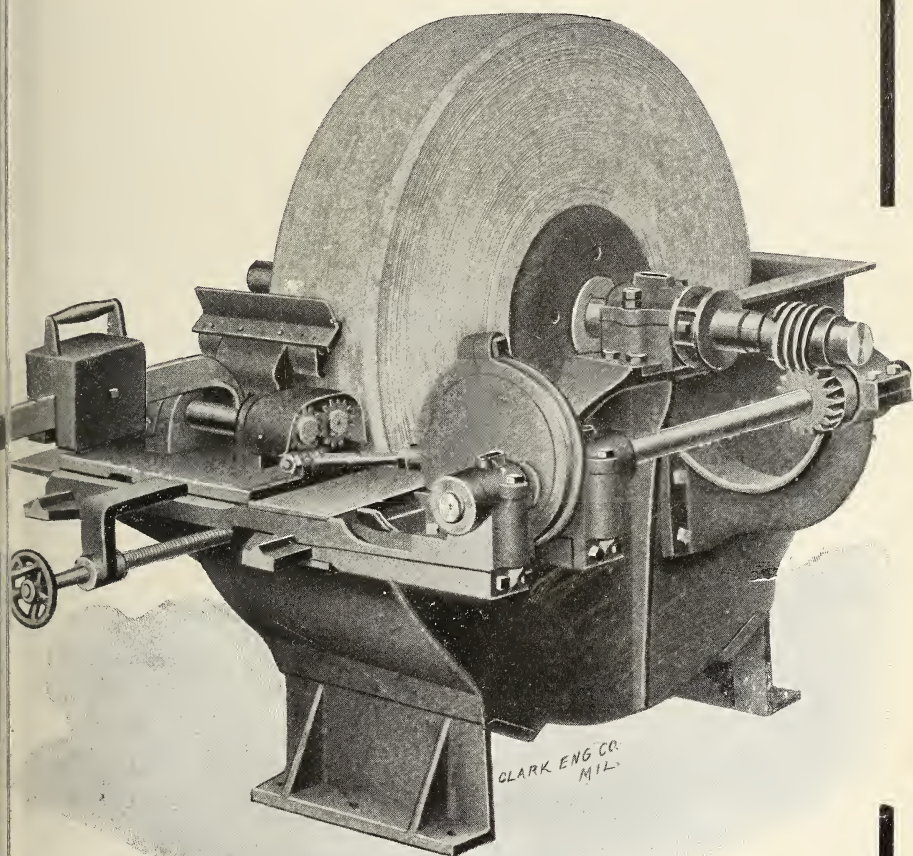
The Montrose Paper Mill shut down this month for a couple of weeks.

The Philip Carey Company, of Lockland, Ohio, maker of felts, building pa-

pers and patent roofing, will build a factory this year in Ontario, the location not yet being decided upon. The company has a warehouse in Toronto.

Valley Iron Works Co.,

Paper & Pulp Mill Machinery Specialists



CLARK ENG CO.
MIL.

AUTOMATIC BARKER KNIFE GRINDER.

This machine has a capacity of 150 perfectly ground knives per day, and does not draw the temper of the knife—therefore effects a saving in your knife account. It is the only machine of its kind on the market.

WRITE US FOR PRICES.

Valley Iron Works Co., Appleton, Wis.,

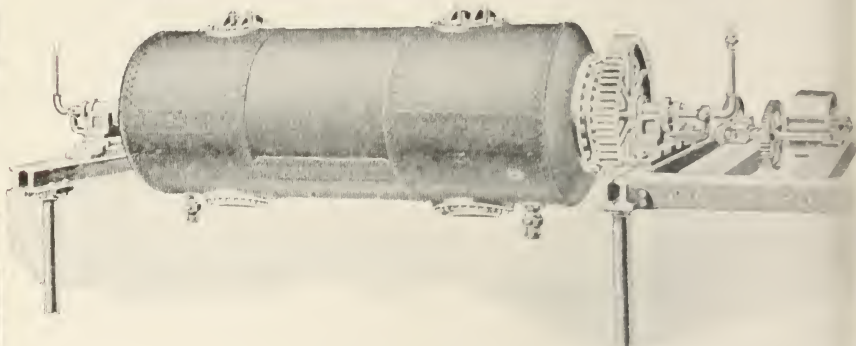
U. S. A.

Holyoke Steam Boiler Works,

INCORPORATED HOLYOKE, MASS., U.S.A. T. H. SEARS, Mgr.

MANUFACTURERS OF
EXTENSION FURNACES, HIGH PRESSURE HORIZONTAL TUBULAR
BOILERS, IMPROVED DIGESTERS, IMPROVED VERTICAL BOILERS.

Improved Rotary Bleach Boilers.



This cut illustrates our improved rotary bleach boiler the result of more than 30 years careful study and experience. The most complete of its kind in the world. Over 500 in use in Canada, United States and Mexico.

We are specialists in boilers and furnaces for pulp and paper mills. Let us know your requirements.

T. J. MARSHALL & CO.

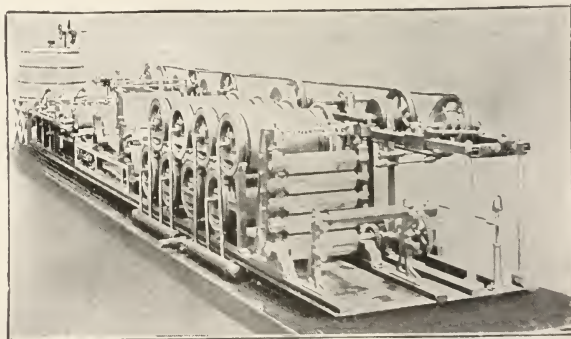
The OLDEST & LARGEST
MANUFACTURERS of

DANDY ROLLS IN THE WORLD

BANK NOTE MOULDS, DECKLE STRAPS, CUTTING MACHINES, ANIMAL SIZING
MACHINES, PATENT DANDY ROLL CARRIAGES, PAPER
TESTING MACHINES, PAPER SCALES, &c.

Established 1792.

By Special Appointment to
H.M. Stationery Office
Telegraphic Address:
"Dandyrolls, London."



By Special Appointment to
H.M. India Office

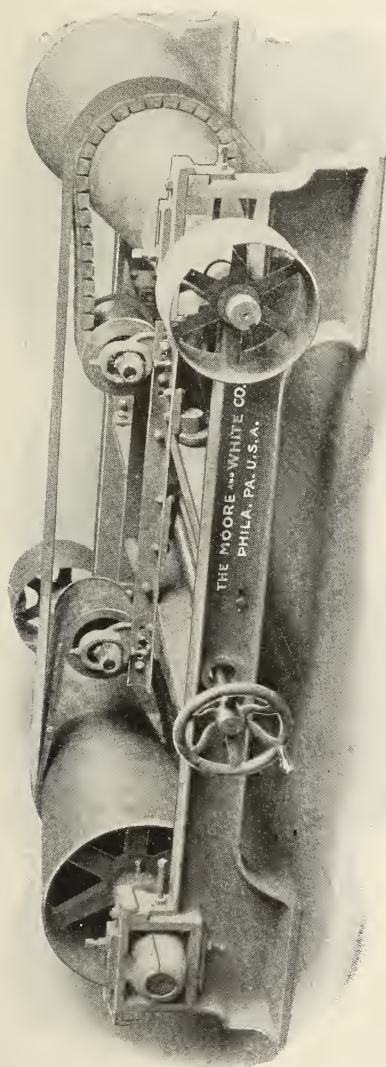
FRONT PERSPECTIVE.

Manufacturers of the Smallest Paper-making Machine in the World

Specially constructed for Mill Testings before Making the bulk, the same results being obtained as from a wide Fourdrinier Machine. Also for Technical Instruction.

T. J. MARSHALL & CO., CAMPBELL WORKS,
Stoke Newington, LONDON.

"Moore & White" SPEED CHANGE for Paper Machines.



WIDE BELT.

PERFECT CONTACT.

ANY DESIRED RATIO OF CHANGE.

Absolutely No End Thrust or Tendency Sidewise of
Transformers or Driving Belt.

The Moore & White Co.

PHILADELPHIA, U. S. A.
BUILDERS OF PAPER MAKING
MACHINERY

PAPER STOCK MARKET REPORT.

Montreal, September 7, 1906.

During the last month there has been very little change in the market. Many of the mills are affected by unusually low water, and are not using as much stock. The tone of the market, however, continues firm.

Manilla rope appears to have touched its highest point, and some mills are not so keen to buy. No. 1 bagging still keeps its price. Stocks of cotton rags are still large, but recently some of the American mills have been buying them in this market.

The demand for roofing stock is a little off, as all the mills using this stock are suffering from low water power.

There is a ready sale for the better grades of waste paper, but no demand for common waste.

New cotton cuttings are not selling as well as they did a few months ago.

We leave quotations as they were last month:

No. 1 white shirt cuttings	\$5.25 to \$5.50
Light print cuttings.....	4.00 to 4.50
Unbleached cuttings	4.50 to 5.00
White shoe clips	4.50 to 5.00
Colored shoe clips	2.75 to 3.00
Domestic white cottons...	2.00 to 2.50
Blues and thirds	1.30 to 1.50
Roofing stock .....	.90 to 1.00
Waste paper .....	.30 to .40
Manilla rope	4.25 to 4.50
Bagging .....	.90 to 1.00



CHEMICAL MARKETS.

China clay and talc quiet and steady in price, and English bleaching powder is also unchanged. There is good demand for caustic soda. New York prices ruling at \$1.75 to \$1.80 for caustic at 100 higher for 60 per cent. works. Sulphur is quoted in New York at \$22.12½ to \$22.62½, according to terms of delivery. The demand is good.

500 Twelve-Foot Logs per Hour

Cut into two-foot lengths ready for the barker. That is the ordinary capacity of **Perron, Gagnon & Co.'s Automatic Pulp Wood Sawing Machine.**

(Patented in United States and Canada, 1900 and 1906.)

One man alone operating the machine can cut 5,000 logs every ten hours without much exertion. Logs automatically conveyed to the saws, and from the saws to the barker.

A machine installed in the large No. 2 mill of the Chicoutimi Pulp Co. and operating 10 hours per day

Supplies Wood to Twenty Grinders Working 24 Consecutive Hours.

On account of its many advantages, and the fact that it requires only one man to operate, our machine has replaced expensive systems requiring the services of 18 to 20 men.

ECONOMISE IN YOUR WAGES BILLS, INCREASE YOUR PRODUCTION, AND SWELL YOUR PROFITS.

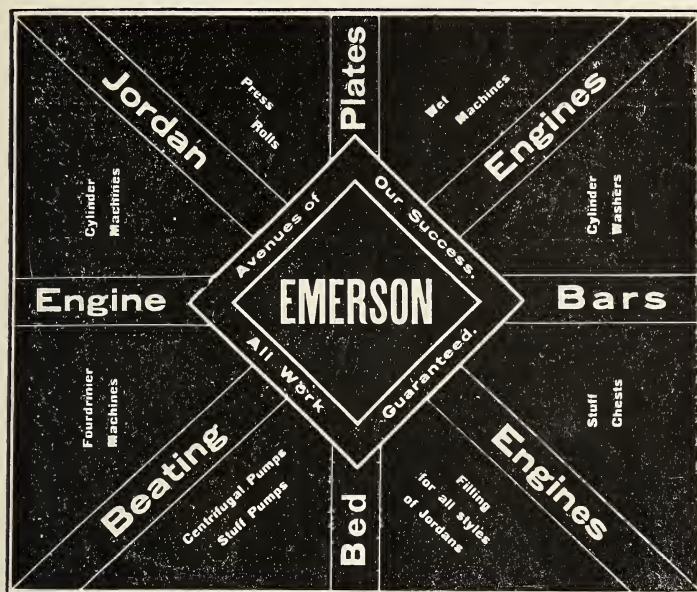
This can only be done in the pulp mill by the use of our up-to-date sawing system. Write to-day for catalogue and particulars.

PERRON, GAGNON & CO.

Chicoutimi, Quebec,

Patentees and Sole Manufacturers.

EMERSON MFG. CO.



LAWRENCE, = = = MASS.^F

BOILERS FOR ALL SERVICES

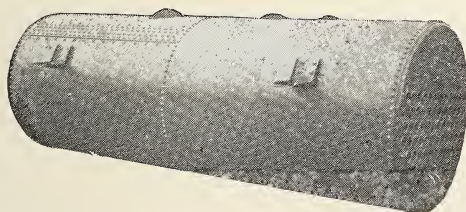
Return Tubular "McDougall" Water Tube, Marine, Etc.

TANKS

Water Tanks, Penstocks, Steel Rivetted Pipe, Etc.

MACHINERY

Complete Power Plants built and installed.



Sole Manufacturers in Canada for Worthington Turbine Pumps and Double Impulse Water Wheels.

John McDougall Caledonian Iron Works Co., Limited, Montreal.

DILLON MACHINE

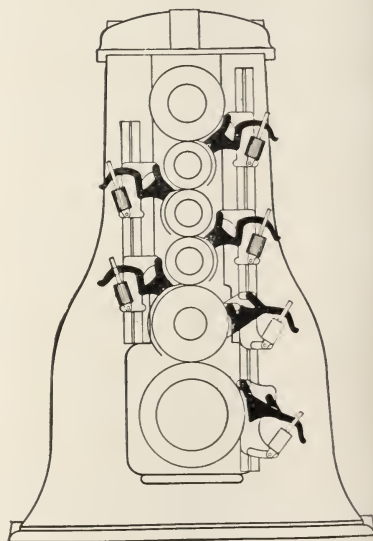
COMPANY

BUILDERS OF

PAPER MILL MACHINERY

Beating and Washing Engines,
No. 1 and No. 2 Refining Engines,
Stuff Pumps, Single, Double and
Triple, all sizes, fitted with the
Dillon Patent Valve Seating,
Wet Machines, Stuff Chests,
Horizontal and Vertical, all sizes,
Single and Double Paper Cutters,
Backstands, Dillon Patent Calen-
der Doctors and Feeds, Jordan
Filling, Poll Bars, Bed Plates
and Cutter Knives.

Our Patent Calender Doctors and Feeds
are made in Canada.



DILLON DOCTORS
AND
FEEDS

DILLON MACHINE CO.
LAWRENCE, MASS.

LAWRENCE, MASS., U.S.A.

MIRAMICHI PULP & PAPER CO., Limited.

CHATHAM, N. B.

Manufacturers of High Grade Easy Bleaching

Sulphite Pulp

Suitable for Writing and Book Papers

ESTABLISHED 1878

George E. Hanson

Expert Manufacturer of High-Class

FELTS

FOR SULPHITE AND GROUND WOOD PULP MILLS

Only best of stock is used in making these goods. I am supplying some of the best Mills in Canada, among them being, The E. B. Eddy Co., Hull; J. R. Booth, Ottawa; James Maclaren Co., Buckingham, Que; Nova Scotia Pulp Co., N.S.; Lake Megantic Pulp Co., Lake Megantic, Que.; A. J. Morrill, Nicolet Falls, and others.

A trial order would be appreciated.

HULL WOOLEN MILLS, HULL, P.Q.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

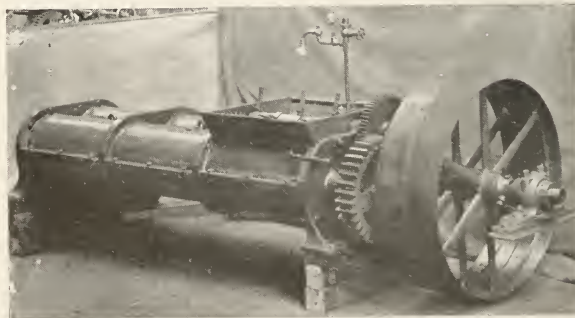
J. H. GATELY'S Guard-Board Canadian Patent 74,735,

Ejector Vacuum Pumps — Bertrams Limited — Patent.

Wahlstrom's Patent Refiner—Canadian Patent 89,368.

DR. C. WURSTER'S Patented Pulping Machines & Kneader

For PULPING UP MACHINE "BROKE," OLD PAPER
STOCK, WASTE PAPERS, DRY WOOD PULP, &c.



Three Segment Pulping Engine—Trough 800 and 2,000 lbs.

OVER 200 SOLD

3

These Machines, with same power, do from TWENTY to FOUR TIMES WORK of STONE without Shortening, Abrading, Creasing, or Wetting the Fibre in any way. Changing the Colour of the Sizing.

Beaters not required for making Boards from Paper Stock.

Can be used for Kneading Clay and other fillers as well as for Kneading Bleaching Powders, instead of the Bleaching Mill.

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.
ENGLAND.

BRITISH MARKETS.

There is a good demand for chemical pulp, with firm prices, but the supply of mechanical is reported by "Paper Maker" to be in excess of demand. Prices are quoted at £2 to £2 2s. for 50 per cent. moist, and £4. 5s. to £4. 7s. 6d. dry.

The chemical trade is active. Alkalies and bleaching powders are rising, but other materials are without notable change.

In the rag and paper stock markets prices are higher for jute stock and Manila rope, while supplies of rags and waste paper are running short, indicating an early probable rise.



The new rossing plant of the Miramichi Lumber Co., at Chatham, N. B., recently announced, is progressing, and is said to be the largest and most modern in Canada. It will have a capacity of preparing 400 cords of pulp-wood per day of 10 hours. The cost of the plant is estimated at \$75,000. The mill has a wharf 1,000 feet long.

Wanted.

Our boss for 12 grinder ground wood mill; must be first class pulp maker and have good knowledge of machinery. Good wages for right man. Address, "M.T.H.," care Pulp and Paper Magazine.

Situation Wanted.

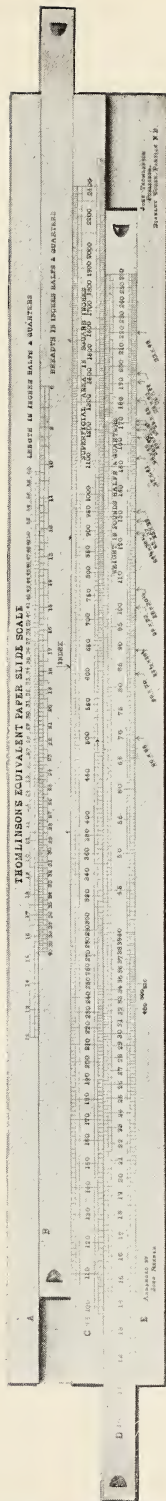
French civil engineer and graduate in science, who has had three years' practice, two of which have been in the manufacture of wood pulp and paper, is open for an engagement with a Canadian paper or pulp mill. A modest salary will be asked to start. Good references. Address, B.C., c/o Pulp and Paper Magazine, 79-80 Confederation Life Building, Toronto, Canada.

FOR SALE

Two Second hand Jordan Engines. In good condition. Taken out to replace with later. For particulars apply Kinleith Paper Co. Ltd., St. Catharines, Ont.

YOU NEEDED IT

For calculating the relative weights of different sizes of paper and similar calculations employing "the rule of three."



Price in Waterproof Cardboard, \$3.50 each.
Price in Extra Finished Boxwood, \$15.00 each.

Write now for booklet.

RITCHIE & RAMSAY, Limited, - 84 WELLINGTON STREET WEST, TORONTO, CANADA.

Cable Address,—"Kaolin, Manchester." A.B.C. Codes, 4th & 5th Editions

CHINA CLAY CO.

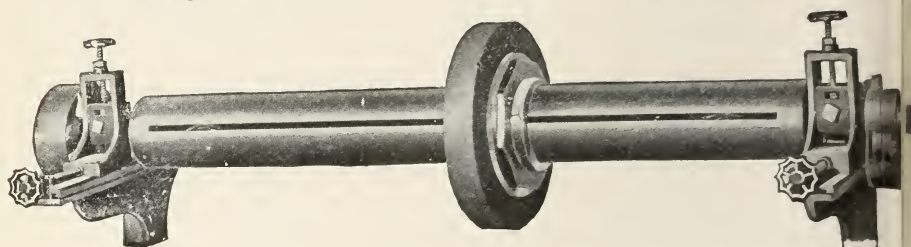
JOHN WILLIAMSON, Manager.

4 St. Annes's Square
MANCHESTER, ENG.

MINES—Ruddle, Bojea, Colchester, South Ninestones, Tronance, St. Austell
Cornwall.

CONTRACTORS TO H.M. INDIAN GOVERNMENT

"The Roy Patent Calender Roll Grinder"



B. S. ROY & SON, - Worcester, Mass. U.S.A.

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders,
Pumps, Heaters.

F. H. DAVIS & CO.

161 Devonshire St.,
BOSTON, - - MASS.

D'Oyley Mears & Co.,

PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
Widrobe Chambers, Queen Victoria Street,
London, E. C.

THE RIORDON PAPER MILLS, Limited.

Merritton and Hawkesbury, Ont.
Merritton Mill—Newspaper, Hanging
Paper, Wrapping Paper and Building
Paper and Sulphite Pulp.
Hawkesbury Mill—Sulphite Pulp.

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, 82 Beaver Street, New York.

Norwood Engineering Company,

FLORENCE, MASS., U.S.A.

Builders of the highest grade of Paper
Finishing Machinery, Rag Dusters, Belt
Power Elevators, etc. Contractors for Fil-
ter Plants of any size, Industrial or Munici-
pal, Gravity or Pressure system.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway)	..	Kirkegaden No. 20.
GOTHENBURG (Sweden)	..	Lilla Kyrkogatan No. 20.
MANCHESTER	.. ..	Guardian Buildings (opposite Exchange).
LONDON	.. .. .	77a Queen Victoria Street, E.C.
PARIS	.. .. .	Rue de Londres No. 29.
ANGOULEME (France)	..	43 Rue Louis Desbrandes.
LYONS	.. .. .	54 Cours Gambetta.
MILAN	.. .. .	24 Via Solferino
TOLOSA (Spain)	.. .. .	18 Calle San Francisco.
NEW YORK	.. .. .	99 Nassau Street.
ST. PETERSBURG	.. ..	Little Podjascheskaja House, 4, Qu. 16.

Telegraphic Address:

"WERTHEIMO, HAMBURG."

**BARKER,
CHIPPER,
PAPER-CUTTER**

MACHINE KNIVES
Of Every Description.

The Peter Hay Knife Co., Limited, Galt, Ont.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.

DEALERS IN

Paper and Pulp of All Kinds.


Prices and Samples on Application.



JOHN KNIGHT & CO.,

CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents for the ... **L.G.V., W.F.,**  and other Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

1906
Edition

Price 10/6 net, or post free in United Kingdom 11/-; Abroad 11/6. Demy 8vo., cloth bound, 6,050pp.

1906
Edition

The Paper-Makers' Directory of all Nations.

Annuaire de la Papeterie de Toutes les Nations.

Internationales Adress-Buch Sammtlicher Papier-Fabrikanten der Welt.

Alphabetically arranged throughout. Printed in clear type.

CONTENTS INCLUDE:

PRINCIPAL PAPER, PULP and BOARD MILLS, &c., OF THE WORLD (5,000) arranged according to countries (40), giving Names, Addresses, Makes of Paper, Number and Width of Machines, Weekly Turn Out, Power Used, Telegraphic Addresses, &c., &c.

FIRMS CLASSIFIED according to PRINCIPAL PRODUCTIONS.

BRITISH PAPER AGENTS AND MILL REPRESENTATIVES with Addresses and Firms Represented.

WASTE PAPER and RAG MERCHANTS and PAPER STOCK DEALERS (British)

CHINA CLAY DEALERS (British).

EXPORT MERCHANTS AND SHIPPERS OF PAPER.

WHOLESALE STATIONERS AND PAPER MERCHANTS.

ENAMELLERS, VARNISHERS, SURFACERS and STAINERS OF PAPER, &c. &c. &c.

CARDBOARD AND PAPER BOX MANUFACTURERS.

TO BE OBTAINED FROM

DEAN & SON, LIMITED, 160a, Fleet Street, London, E. C.

STUFF PUMP

This pump is made in three sizes, 5", 6" and 8".

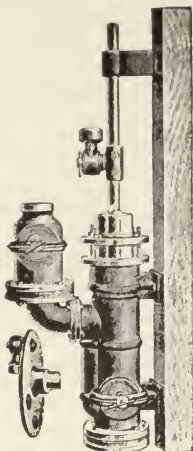
The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by

T. McQUAT & SON, Lachute, Que.,



MAPLE LEAF
STITCHED COTTON DUCK
BELTING
DOMINION BELTING CO. LTD.
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of

**GRADED RAGS, PAPER STOCK
ROPE BAGGING, ETC.**

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction Boards.
Mills at Sault au Recollet, P.Q.

ATTERBURY BROTHERS, Incorporated
Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

WIRE ROPE

All kinds and sizes, and for all purposes. Standard and
Lang's Patent Lay.

PRICES RIGHT.

Rope Fittings.

PROMPT SHIPMENTS
Rope Grease.

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.

BELOIT IRON WORKS,

BELOIT, WIS., U. S. A.



BOILERS:

HORIZONTAL TUBULAR
VERTICAL TUBULAR
LOCOMOTIVE TYPES

ALL SIZES.

MEDIUM or HIGH PRESSURE

High Pressure Tubular
Boilers from 80 to 250 H.
P. a specialty.

You are particularly re-
quested to send us your
Boiler inquiries.

Write for Bulletin 112.

SALES OFFICES:
TORONTO
ROSSLAND
HALIFAX
VANCOUVER

THE JENCKES MACHINE CO.,

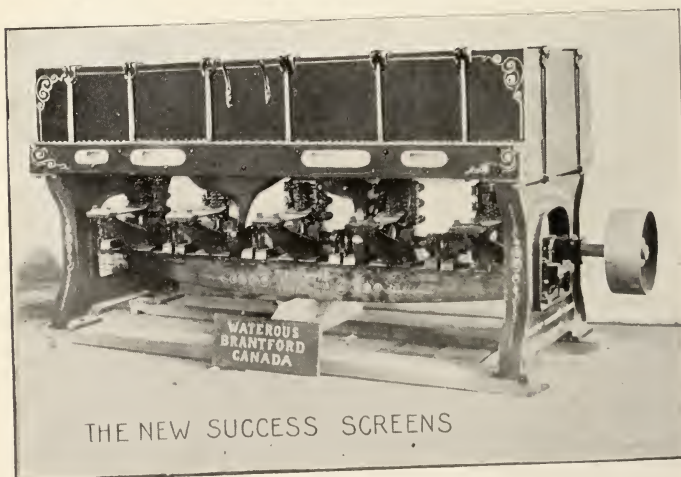
EXECUTIVE OFFICE

LIMITED.

60 Lansdowne St. Sherbrooke, Que.

PLANTS: Sherbrooke, Que.
St. Catharines, Ont.

We manufacture a full line of PULP MILL MACHINERY



We repair and
make over
Cylinder
Moulds.

Write for Special
Catalogs.

The Waterous Engine Works Co., Limited

BRANTFORD, - CANADA.

CHALK WHITE" COATED BOOK PAPER.

The best and whitest coated paper sold. — All regular sizes and weights in stock.

The Cover of this magazine is our Art Litho Cover, stocked in four cuts, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Windsor Mills, Que. - Montreal. - Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

S. YOUNG, - - Sole Agent for Canada.

14 Hospital Street, Montreal.

F

"TURBINE WATER WHEELS"

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from

S. MORGAN SMITH Co.,

NEW YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company,	14,000 h.p.
Montreal Cotton Company,	7,000 h.p.
Sturgeon Falls Pulp Co....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

JOSEPH H. WALLACE, C.E.

M. AM. SOC. C. E. M. CAN. SOC. C. E.

INDUSTRIAL ENGINEER.

TEMPLE COURT BUILDING, NEW YORK

CABLE ADDRESS "TRIPLEX," N.Y.

MANUFACTURING PLANTS AND POWER DEVELOPMENTS
REPORTS ON INDUSTRIAL PROPERTIES, APPRAISALS, ETC.

A. V. JAASAD, M.E., CONSULTING STEAM ENGINEER.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland,

=

=

Montreal

PULP AND PAPER MAGAZINE OF CANADA

VOL. 4. TORONTO OCTOBER, 1906. NO. 10.

FEATURES OF THIS NUMBER

More about Kraft Brown

Strike at Buckingham

**Norwegian Pulp and Paper
Trade**

**Advance on Sulphite
Prices**

New Soda Fibre Process

The Labor Situation

Established 1837

Incorporated 1867

RICE, BARTON & FALES

MACHINE & IRON CO.

CHARLES S. BARTON, Prest. & Treas.
GEORGE S. BARTON, Secretary.

WORCESTER, MASS.

BUILDERS OF

Modern Fast Running and Heavy Four-
drinier and Cylinder Machines for Making
Paper, and Drying Pulp.

Double Drum Vertical Winders and Re-Winders.

Upright and Revolving Reels.

Large and Heavy Wet Machines.

Revolving Cutters and Layboys.

Hill Patent Diagonal Cutters, which can be equipped with
Slitting Arrangement, and Reeling Off Bars.

Chilled Iron Calender Rolls.

Screens and Screen Plates.

Stuff, Suction and Fan Pumps.

Patent Top and Double Edged Slitters.

Pneumatic Re-Winders for Small Rolls.

Additions and Changes made to Old Paper Machines
Greatly Increasing Speed and Capacity.

Makers of the Moore Patent Horizontal Revolving
Screen for Ground, Soda, and Sulphite Pulp.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

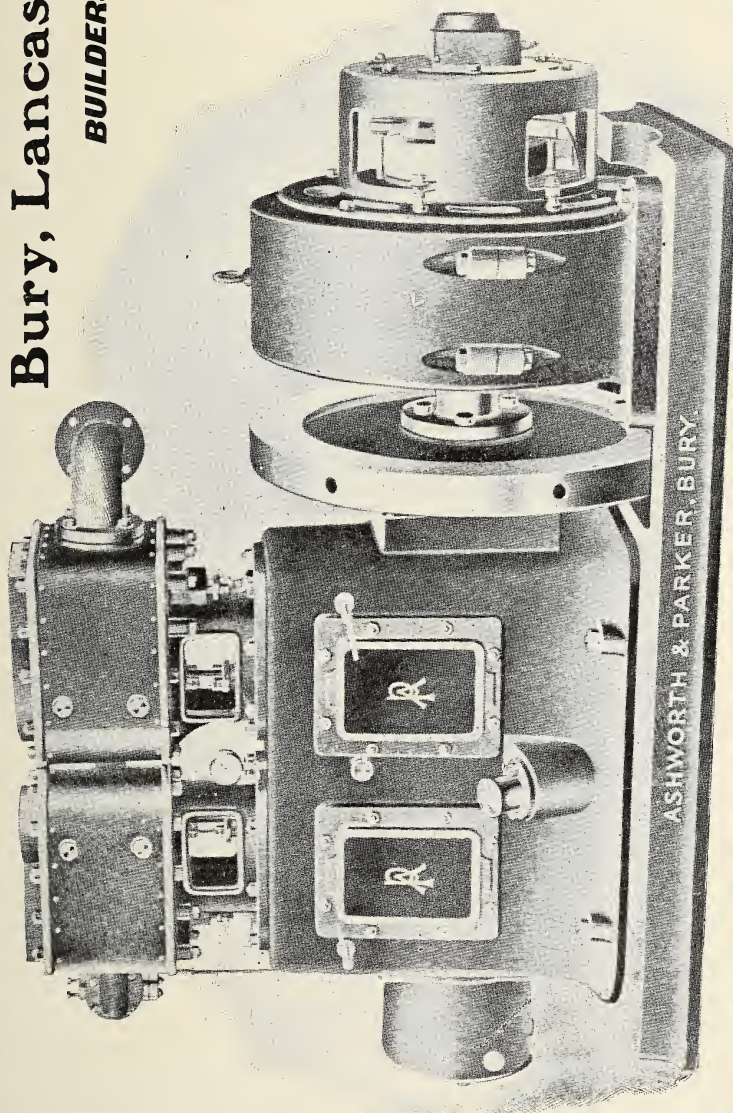
ESTIMATES ON APPLICATION.

Ashworth & Parker

Bury, Lancashire, Eng.

BUILDERS OF ...

Forced
Lubricating
Engines,
Special Types
For Paper
Machine
Driving,
Electric
Generating
and
Centrifugal
Pumping.



BERTRAMS, LIMITED

Papermakers'

Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermaking
embracing British, American and Continental Improvements.

C. H. JOHNSON & SONS, LTD.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rolls

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England.

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

Agents for Canada: C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL.

INDEX TO ADVERTISEMENTS.

North & Parker	5	Hough, R.	60
Thurby Bros.	56	International Pulp Co.	9
Deer & Co.	39	Irwell and Eastern Rubber Co.	47
Bellet Iron Works	57	Israel, Gebruder	41
Rey & Jackson	4	Jenckes Machine Co., Limited	12 & 58
eram's, Limited	6	Johnson & Sons, Limited, C. H.	6
la-Clawson Co., The	7	Klipstein & Co., A.	11
re & Co., F.	10	Kimball, Herbert S.	9
ruher, Mond & Co., Limited	60	Knight & Co., John.	55
ada Paper Co.	59	Lea & Coffin, and H. S. Ferguson	9
lian Rubber Co. of Montreal	8	Little, Arthur D.	9
ase, Gottheil & Overton	9	Marshall, T. J. & Co.	44
Clay Co.	52	Masson, Scott & Co., Limited	46
htie, J.	60	McDougall Caledonian Iron Works, The	
htie, Limited, George	3	John	37
es & Son, Limited	55	McQuat & Son, T.	56
es & Main	8	Mears, D'Oyley & Co.	53
at & Co., F. H.	52	Miramichi Pulp & Paper Co.	49
efew, J. A.	9	Moreau Barking Machine Co.	24
lin Machine Co.	48	Moore & White Co.	45
onion Belting Co.	56	Norwood Engineering Co.	53
at & Brownell	8	Paton, Thomas L.	3
mon Mfg Co.	37	Perrin & Co., Ltd., Wm. R.	52
anks & Moody	9	Perron, Gagnon & Co.	46
iser, Julius	e o m.	Porritt & Sons, Joseph.	10
ree, Jean	3	Porritt & Sons, Limited, Samuel	60
ree, Jean (Pulp Stones)	42	Porritt Bror. & Austin.	6
reing, The B. Wire Co., Limited	56	Pringle & Son, T.	9
apon, Geo. E.	49	Pulp & Paper Trading Co., The.	55
aw, George F.	9	Pusey & Jones Co.	50
asworth & Sons Co., Limited, Alfred	12	Quebec & Lake St. John Ry.	8
Knife Co., Limited, Peter	55	Reeves Pulley Co.	40
oke Steam Boiler Works.	44	Rice, Barton & Fales.	2
on, J. H., & Sons Co.	10		

(Continued on Page 8)

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.

Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

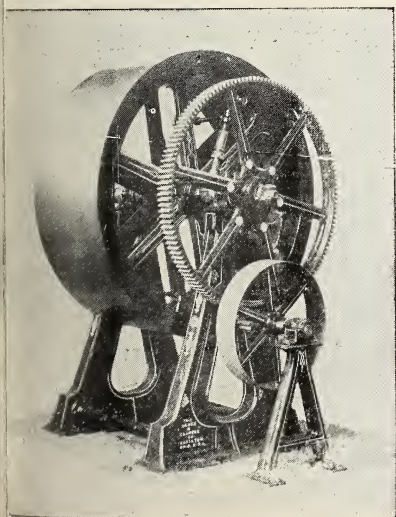
from new patterns and de-
signs embodying the latest
improvements.

Foot-power Perforators.

3 Roller Ink Mills.

Evaporating and Drying
Machinery.

We Solicit Correspondence.





DECKLE STRAPS

We are supplying some of the largest and most discriminating users of Deckles in Canada with maximum success.

Read the following letter, just received in reply to a recent enquiry from our Deckle Strap department:—

"Your enquiry regarding deckle straps to hand, and in reply must say that I have used deckle straps made by the best firms in Scotland and in the United States, and also that I have used yours during the past twenty years, and I have always found your deckle straps equal to, if not better than, any of the above makes.

During the past two years your deckles have proven to be **the finest I have ever used.**

I have not experienced any trouble with them.

JAS. D. FINDLAY, Manager,
Joliette Paper Mills, Joliette, Que."

THE CANADIAN RUBBER CO. OF MONTREAL, LIMITED.

HALIFAX 155 Granville St
MONTREAL.. Imperial Bank Building,
St. James St.

TORONTO Corner Front & Yonge Sts.

And at

WINNIPEG, CALGARY, REGINA,
VANCOUVER, VICTORIA

INDEX TO ADVERTISEMENTS

(Continued from page 7)

Riordon Paper Mills, Ltd.....
Ritchie & Ramsay.....
Roy & Son, B. S.....
Smith Co., S. Morgan.....
Union Screen Plate Co.....
Union Sulphur Co., The.....
Vogel, C. H.....
Valley Iron Works Co.....
Walker, J. R. & Co.....
Wallace, Jos.....
Waterous Engine Works Co., Ltd.....
Wertheim & Co., A.....
Whittaker, Richard.....
Wilson, Paterson & Co.....
Winn & Holland.....
Wurster, Dr. C.....
Young, J. S.....

DEAN & MAIN, Mill Engineer and Architect

Exchange Building, 53 State Street

BOSTON, Mass.

Examinations, Designs and Supervision
Construction of Pulp and Paper Mills. Exam-
inations and Reports on Projects and Water Power
Developments.

CHARLES E. EATON,
M. Am. Soc., M. E.

JAMES P. BROWNELL,
C. E.

EATON & BROWNELL,

Consulting Engineers and Architects

Paper, Pulp and Fiber Mills, Water, Steam and
Electric Power Development, Examination
Properties, Consultation Reports.

SMITH BLDG.

WATERTOWN, N.



This Railway runs through **Two Hundred Miles of the Finest Spruce Forest in America**, through a country abounding in **Water Powers** suitable for **Pulp and Paper Mills** and other industries, and easy access to the **Steamship Dock at Quebec.**

ALEX. HARDY,
G.F. & P.A.

J. G. SCOTT,
General Manager
QUEBEC, P.Q.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT AND ENGINEER
 SPECIALIST IN
Pulp and Paper making. F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
 101 Tremont St., Boston, Mass.
 signs, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and
 writes Burners for the Sulphite Process. F

GEORGE F. HARDY, M. AM. SOC., M.E., M. CAN. SOC. C.E.

Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of
 Mill Properties, Water Power Developments.
 Mutual Reserve Building, - 309 Broadway,
NEW YORK.

Asbestine Pulp" Filler

Superior to any Clay.
 delivered price on application.
INTERNATIONAL PULP CO.
 New York City, U.S.A.

T. PRINGLE & SON

Specialities:—Pulp Paper and Fibre Mills,
 Hydraulic Developments and Electrical
 Transmissions
 409, 410, 411, 412 Coristine Bldg.,
MONTREAL. F

C. H. VOGEL

A. M. Can. Soc. C.E. **ENGINEER**
 OTTAWA, CAN.
WATER POWER
 Paper, Pulp and Sulphite Fibre Mills

LEA & COFFIN, and H. S. FERGUSON, ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
 Water Power Development and Trans-
 mission. Steam Power Plants.
CORISTINE BUILDING, MONTREAL.

A. S. FAIRBANKS, Assoc. Mem. Can. Soc. C. E.
 Assoc. Am. Inst. E.E.
 H. A. MOODY, B.S., M.E.,
 Assoc. Mem. Am. Soc. M.E.

FAIRBANKS & MOODY

Industrial Engineers
Paper and Pulp Mills
Hydraulic Development
 150 Nassau St., **New York.**

J. A. DeCEW, B.A. Sc.

Chemical Engineer.
SUN LIFE BLDG., MONTREAL

Specialist in Soda Fiber and Paper Mill Chemistry.
 Patented Processes for Digesting, Causticizing, Evaporation, Recovery.
Consultation. Advice. Reports.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

F

—Canada's commercial agent in Newfoundland in a recent report says: "Other things being equal, there is, I am satisfied, a decided preference in favor of Canada, and it only remains for the traders of the Dominion to cultivate in a careful way the requirements and good-will of their kinsmen in this colony, not only to retain the large share they now have, but to extend it very materially in the years to come.

The colony," he concludes, "is in a prosperous condition at present, the time seems opportune for the motion of an increased trade from Dominion."

—The Western Pulp and Paper Ltd., London, is being voluntarily wound up, with Mr. Edward Holt of Devon House, London, E.C., as liquidator.

JOSEPH PORRITT & SONS

HELMSHORE NEAR MANCHESTER

FELTS

and JACKETS FOR PULP and PAPER MILLS

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes



Agents for the States and Canada,

F. BREDT & CO., - 240 Water Street, NEW YORK

Established 1864

Incorporated 1888

J. H. HORNE & SONS CO.,

LAWRENCE MASS.

MANUFACTURERS OF HIGH-GRADE

PAPER MILL MACHINERY

Beating and Washing Engines

"Jordan" Engines

"Horne" Improved Patent Engines

"Cloudman" Cylinder Washers

FOURDRINIER, CYLINDER & WET MACHINES

"Horne" Friction Cutters

Fan Pumps

Rag Knives

Cone Pulley Cutters

Stuff Pumps

Roll Bars

"Horne" Calenders

Calender Rolls

Bed Plates, Etc.

ORDERS FILLED ON RECEIPT

GET OUR CATALOGUE

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal
23 Scott St., Toronto

Sulphate Alumina

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, ===== MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y



127 BOARD OF TRADE BLDG., MONTREAL.

Agents for the United Alkali Co. of England

OFFER TO THE TRADE:

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.



VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air. will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leather. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Hawksworth & Sons Co., Limited
Mill Engineers and General Furnishers
551 St. James Street, - Montreal

REFUSE BURNERS

Our experience in this class of work has been extensive. We are prepared to contract for Refuse Burners of any size.

We erect the Steel Shell complete ready for brick lining.

Estimates cheerfully furnished.

Correspondence invited.

THE JENCKES MACHINE CO., LIMITED

TORONTO

Head Office: SHERBROOKE, Que.

ROSSLAN

HALIFAX

Works: Sherbrooke, Que.
St. Catharines, Ont.

VANCOUVER

THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 4.—NO. 10.

TORONTO, OCTOBER, 1906.

{ \$1 A YEAR
{ SINGLE COPY 10C.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

SUBSCRIPTIONS: Canada, British Empire and the United States, \$1 a year; to Foreign Countries, 5s. a year.

The Pulp and Paper Magazine is published on the Tuesday of each month. Changes of advertisements should be in the publisher's hands not later than the 10th of the month, and, where proofs are required, 15 days earlier. Cuts should be sent by mail, not by express.

E. B. BIGGAR,
PUBLISHER

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

KRAFT BROWN.

Since the publication of the information in last issue on "Kraft brown" paper, we have received a number of enquiries and requests for samples of this paper. It is noteworthy that more of these enquiries have come from the United States than from Canada. It tends to show that our United States friends are, as usual, fully alive to the importance of every forward step in pulp and paper manufacturing, while our Canadian manufacturers are either not so wide awake or else they lack the courage necessary to launch out in new fields involving initial expense and study.

Our readers will be interested in further contributions on this subject and that of soda fibre with which the manu-

facture of Kraft brown is essentially connected. As stated in last issue Canadian paper manufacturers should now realize that the soda fibre problem is quite a different one to that presented ten or fifteen years ago, and it is time some of us should see the next step in the progress of the Canadian paper industry is the establishment of a soda pulp branch as a feeder for other branches, and as a means of making the Kraft brown trade a success.

As for Kraft brown we regard this as the greatest discovery in wood pulp paper manufacturing that has been made since the development of the sulphite process, and Canada is in a peculiarly favorable position to profit by the discovery. We can find a market abroad for the entire output of half a dozen mills the moment they are started.



CANADA'S PULPWOOD AND THE THE UNITED STATES.

The United States mills to-day are dependent on Canada for 38 per cent. of their pulpwood or, including ground wood and sulphide for 43 per cent. To this fact, the Americans are thoroughly alive, though they do not always readily admit it. Canada has the water-power and great stores of raw material, and should become the great print-paper

producing country. At present her wealth in raw materials goes largely to build up the paper industry of the United States. This would be all very well if the Americans were disposed, as many of them no doubt are, to play fair. But the attitude of a large number of United States politicians towards Canada has brought about a very strong feeling that, as Canada holds the long end of the stick in her possession of pulp-wood, and as the Americans are absolutely dependent on us for their supply of that essential, it should make its strong position felt in no uncertain manner. The United States, which possesses practically no pulp-wood of its own, imports it from Canada, makes it into the finished product, largely supplies the demands of its own market and exports a surplus. Canada naturally wants to know why, possessing the original store of raw material, she should not reap the benefit of such possession, and why she should not do the exporting.



THE NEWFOUNDLAND SACRIFICE.

Newfoundland is the latest example of a British colony to fall victim to the apathy and ignorance of Imperial statesmen and their amazing misinterpretation of American character. The fact that in the present case the Ancient Colony's statutes were not simply disallowed by Downing Street, but were over-ridden by a treaty which places its hardy sons at a grave disadvantage compared with the fishermen of the New England States, makes the shock to their feelings only the harder to be borne. Culminating as it does, after a long term of friction with France, it is no wonder that

Newfoundland's sense of justice has been made to smart, and that indignation has risen to a dangerous pitch.

The pity of all these Imperial concessions to American friendship is that the sacrifices they involve are so absolutely unnecessary and so gratuitously wasteful. The sacrifice of a part to the whole sounds very nice in theory, and, were the whole really benefited, the voice of protest would be heard on this side the Atlantic. But such benefits are entirely mythical in the cases of British concessions to Yankee bluff (or call it friendship), which have occurred in recent years. The American is a good bargainer, but for the sort of bargain which has lately been thrown his way he has nothing but contempt. It looks too much like toadying to suit his over-squeamish taste. In other words, the sacrifice of colonial good feeling has been made for the sake of nothing at all except an increased determination on the part of American diplomatists to let the Britisher to a finish every time.

Canadians have a very hearty sympathy for their weaker sister. It is only a short time since they passed through a similar experience, when the Alverstoke award made them realize as never before the shakiness of the reed upon which they had been leaning. It is not much to say, however, that that lesson was the last in its series. We believe that even the Imperial Government, with its marvellously crass ignorance of facts that count outside of Downing Street, realizes that Canada at least will never again accept such a rude shock to its rights and susceptibilities as was recently submitted to on that occasion. The next time its territory is divided with a foreign country, it will insist upon doing its own dividing. We

be the cost, it will refuse to be
ced at the behest of commissioners
grossly ignorant of all the conditions
underlying a fair deal. That Newfound-
land should have been made the victim
of another misapprehension in London
as to the feeling of the colonies on this
matter is regretted by all Canadians.



The strike at Buckingham draws at-
tention to the labor situation in a lurid
manner. That one was attended with
damning results, but, even in cases
where the men have so far remained at
work there is a good deal of unsettle-
ment and dissatisfaction. On the whole,
labor to-day is one of the most im-
portant questions that confront not only
the pulp mills, but all other classes of
Canadian manufacturers. It is really one
of the problems of prosperity. The
rapidly developing state of the country,
with thousands of miles of railroads and
with great industrial works of all kinds
everywhere, acts as a magnet to draw men
to the work which is easiest. The labor
which in former years had to work in
the woods in winter, now finds it can
work enough in the summer to last
throughout the year, or at any rate can
find some occupation for the winter
months which will not necessitate its
leaving the comforts of family life. Men
who formerly thought \$18 a month and
rough food a good emolument for lumber-
ing or logging, can now obtain as high
as \$30 to \$36, with an excellent bill of
fare. And even with all this they are
not satisfied and are hard to depend on
for a permanent supply of labor. No
wonder the pulp men are troubled.



Pulp & Paper Currency

An opening is said to exist in the
United Kingdom for roll wrapping and

for wrapping-paper stands, such as those
which hold three or more rolls of paper
and have a steel bar with a sharp edge
fitting close.



An Italian mill, that of Cartieri Pietro
Millani, at Fabriana, is producing a new
kind of paper specially adapted for bank
notes, inasmuch as the features of the
design can be produced in three colors
in the water-mark. Three different lay-
ers of hand-made paper are pressed to-
gether, as a result of which it is im-
possible to counterfeit the design.



An Austrian inventor has discovered a
new process of making paper from com-
mon marsh reeds. It is claimed to be
superior to that made from wood pulp
or esparto grass and almost the equal
of that made from rags. The reeds grow
in rank profusion on the Danube Delta.



An interesting calculation of the pro-
duction of paper throughout the world
shows that in 1904 there were 2,780 fac-
tories in existence with 4,189 machines
and a total product valued at £80,000,-
000. The capital invested in the industry
amounted to over £200,000,000. Of the
above amount the United States made
24,000,000 cwt., Germany 19,500,000 cwt.,
and Great Britain nearly 14,000,000 cwt.
France, Austria, and Italy were the other
chief producers.



A process has been invented for
manufacturing a blotting and copy-
ing paper out of ordinary paper,
or in other words, giving to the
latter the absorbent properties of
blotter. The method is as follows:--

The paper is moistened on both sides with lukewarm soda or potash lye (30 or 40 degrees) and laid in layers. Paper in web form is rolled up. After being left until the size and other ingredients—loading materials, etc.—are more or less completely dissolved. It is put through a hot soap bath, rinsed in hot or cold water and dried. If white paper is to be made out of colored, the customary chloride bath is used. The treatment has a different effect upon different kinds of paper, but in every case the paper becomes soft and absorbent, and certain varieties become spongy and felt-like. The inventor says old papers may be utilised in this way, and the cost of the process is so small that the product will be considerably cheaper than such papers are usually.



Canada has not improved its position as an exporter of wood-pulp to Great Britain in comparison with Sweden and Norway. The imports into that country from Sweden last year were valued at £1,214,575; from Norway, £1,051,492; from Canada, £206,113. The following table summarizes the percentages of the three countries:—

	1901.	1906.
	%	%
Sweden	35.0	44.0
Norway	43.6	38.1
Canada	12.9	7.4

Sweden's exports of wood pulp to the United Kingdom, comparing 1901 with 1905, was £371,923; Norway's, £2,321, while those of Canada show a decrease of £106,234. Russia with Finland supplied the British market with pulp, amounting in value to £123,121 in 1905, an increase of £104,678 compared with 1901; Germany's

increase was £41,430, while Holland exports decreased £16,600, and those to the United States £63,605.



A new electric process for giving metallic surface to paper is described "Electricitat." It consists in placing bath in a porcelain tank containing metal plates. One of the plates is of metal to be used to cover the paper, rather weak current is used. A layer of metal is deposited on the second plate, as usual in the galvanoplastic process. When the deposit has reached thickness of about 1.250 inches, the paper is placed against a sheet of paper previously coated with the proper kind of glue. After drying, the metallic layer adheres to the paper so strongly that it remains upon the latter when it is pulled off the metal plate. A variation of the process consists in ornamenting the foundation plate with any kind of signs or letters, and these are reproduced on the metallic deposit. The solutions recommended for the process are as follows:—For silver paper, a bath is made of cyanide of silver 210 parts, cyanide of potassium 13 parts, water 980 parts. For gold paper, cyanide of gold 4 parts, cyanide of potassium 9 parts, water 980 parts. For copper, sulphate of copper 6 parts, sulphuric acid 6 parts, water 980 parts.



Forestry and Pulpwood

The advance of \$1 per thousand lumber, made by the British Columbia Lumbermen's Association, has led to agitation for a \$2 reduction on the tariff against United States lumber.

During the last two years, the United States has paid out no less than \$96,000 for products of the forest, the

explanation being the necessity for tropical woods and fibres. Demand for new woods of the temperate zone increases, while the supply becomes scarier.

Co. Roberts and Dr. J. S. Tait have secured from the Newfoundland Government about 140 square miles of timber land between Bonavista and Trunty Bay, with a view, it is said, to pulp-mill or lumber cutting.

At the meeting on the 10th inst., of the Entomological Society of Ontario, Professor Zavitz expressed an opinion that Canada was likely in the future to have more forest insects, because of the importation of forest nursery stock from Europe which would bring with it the worst pests of the continent. The remedies suggested, were the prevention of forest fires and clean operations. The extent of the depredation by insects was the weakening of trees by fire or injuries inflicted by wood men. Weakened trees become breeding centres for insects which spread rapidly.

That trees grow sometimes to an enormous age is known in a general way, and the following well authenticated examples of trees in Great Britain bring the fact home. The yew trees of Braburn, Ke (3,000 years old); Darley Churchyard Derbyshire (2,096 years old); and Tregafal, Aberfeldy, Perthshire (2,500-2,600 years); while other long-lived British yews are those of Crowhurst, Surrey (1,400 years); Grasford, North Hampshire (1,400 years); and Fountains Abbey, Ripon, Yorkshire (1,200).

Contracts have been awarded for cutting ties on a large number of the upper limits in Rainy River district and on Montreal River, which have been administered by the Department of Lands, Forests, and Mines. The tenders were generally for ties alone, though in some cases the presence of valuable pine for other purposes made it advisable also to include these timbers. The system under which the ties are sold is a new one as applied to ties, though it has already been applied to the selling of timber for

lumbering purposes. A fixed Crown due of 5 cents per tie is exacted and the tenderers are asked to state how much more they will give by way of bonus. In the case of timber, the Crown due is \$2 per thousand feet, board measurement. It is estimated that the bonuses will bring in \$230,000 in addition to Crown dues. The tenderers for ties are engaged in supplying the railways, the J. D. McArthur Company being one of the successful tenderers for a section of the G.T.P.

Alex. Niven, appointed by the Ontario Department of Lands and Forests to survey a portion of the northern clay belt between Missanabie and Metagami Rivers, covering an area of over 1,000,000 acres, reports that the country, generally, is rolling, with an occasional muskeg, and the soil a rich clay loam, with some areas of sandy loam. The timber is the largest he has yet encountered in Northern Ontario. It is chiefly black and white spruce the latter averaging from 16 to 30 inches in diameter, and being suitable for lumbering. Considerable poplar as large in size as the spruce was also met with. Balm of Gilead, white birch, and occasional small areas of black birch were the other woods found. The survey for the main line of the Grand Trunk Pacific Railway passes through these townships.



STREAM CONDITIONS IN NEW ENGLAND.

The general drought prevailing in the New England States during the past month has recently been somewhat relieved, in Massachusetts at least, by a rainfall of one to two inches, but as the area of rainfall did not extend very far north, the drought in northern New England was still unbroken up to this writing, September 27. Its effect on the streams of the region is apparent, and a comparison of their present condition with that for the normal year may be of interest. The estimates have been furnished by H. K. Barrows, district hydro-

grapher in charge of the hydrographic work of the United States Geological Survey in New England.

In northern Maine the rivers are at practically the same low stage that they were at this time last year, and the run-off during the fall of 1905 was an exceedingly low one. Fish and Aroostook Rivers in October, 1905, were discharging only about .07 second-feet per square mile of drainage area, an exceedingly small flow in view of the fact that they are good sized streams, Fish River having a drainage area of about 890 square miles, and Aroostook River about 2,200 square miles at the measurement point. The cause was insufficient rainfall over the drainage basins during 1905. This year the conditions have been similar, and unless heavy fall rains set in the low run off figures for 1905 will be repeated. On the eastern coast of Maine Machias River is flowing perhaps one-third of its ordinary September flow. The large power streams in Maine, namely, the Penobscot, Kennebec and Androscoggin, are to a large extent controlled by storage in their head waters, so that the effect of the drought does not appear on the rivers as yet. The water stored, however, is being lowered very rapidly, and indications are favorable for low-water conditions in the late fall and winter unless unusual fall rains occur.

In New Hampshire and Vermont records indicate that all the streams are considerably lower than the average. The Connecticut at the Orford gauge station is flowing about 1,000 second-feet, which is a little over one-third the usual flow for this time of year. The Merrimac River, also, is somewhat lower than usual, but is helped out considerably by the large amount of water that was stored in Lake Winnepesaukee this season.

In Massachusetts low-water measurements have been obtained on some of the streams in the western part of the State, which are very much below previous actual measurements. The drought has extended over New York State, but has been partially broken by rains which fell during the last week.

These periods of low water, especially when they occur two years in succession, bring forcibly to the attention of water-power users the necessity of utilizing all possible natural storage and, in many cases, the advisability of storing water by artificial means. Considerable work has been done along these lines on the more important rivers, and there is room for much more before it will be possible to tide over droughts of a month or two by the use of water conserved from the spring flow.

A comparison of the low-water September flow of 1905 with the ordinary September flow of the streams is given in the following table:—

Ordinary and Low-water September Flow of New England Rivers.

River and Station.	Sept. 22, 1906.		Ordinary		Drainage area sq. miles
	Gauge height.	Discharge. Sec. ft.	Gauge height.	Discharge. Sec. ft.	
Fish-Wallagrass, Me.	1.9	72	3.0	307	890
Aroostook—Ft. Fairfield, Me.	3.1	180	4.0	1075	2230
Machias—Whitneyville, Me.	3.1	100*	...	360*	465
Connecticut—Orford, N. H.	2.8	1000	5.0	2500	3305
Merrimac—Franklin, N. H.	4.0	900	5.0	2200	1460
Deerfield—Deerfield, Mass.	1.58	(a)	2.6	600	667
Otter Creek—Middlebury, Vt.	12.2	360	13.0	800	615
Winooski—Richmond, Vt.	3.9	195	4.7	830	885

(a) Not yet computed—probably as low as 100.

Progress of Paper-Making

(Condensed from a Lecture by Dr. Klein before the Society of Cellstuff and Paper Chemists.)

ancient times the material first used for paper, also serving for traditional purposes, was of organic nature.

Organic material was applied for decorations or designs, and there also was developed the art of making papyrus. The papyrus of the Egyptians, highly esteemed by the Romans, had been principally used until about 1,000 years before Christ; it was made of finely cut slices of the mark cells of a swamp plant, "*Cyperus papyrus* L." These were planted, and finished with starch

to the highest state in the art of manufacturing parchment was reached about 1,000 years before Christ, during the reign of King Eumenes of Pergamon, from whose realm the name of parchment originated. Parchment has occupied a place of useful application down to the present time, but its consumption has steadily decreased since about 1,200 years after Christ, during the general introduction of the paper industry in Europe.

The art of making paper is also derived from the Far East, where the inventive genius of the Chinese succeeded, the supply of papyrus proving insufficient, to produce a sheet, similar to paper, from the fibres of plants. In the eighth century after Christ the art of making paper was transplanted into the West by Chinese prisoners of war, and the Iranians improved and rapidly developed the same. The Iranians produced the first paper made of fibres of flax and hemp rags. Families of paper-makers are mentioned in Italy, in the thirteenth century, and in 1290 the first European paper mill was started in Speyer. After the first appearance of the Occidental newspaper in 1505, and after Gutenberg had established his printing shop, the use of hand-made paper increased and spread rapidly into surrounding countries.

The foundation of the present paper industry was created by the invention of the mechanical production of paper, and started by the operation of the first paper-making machine in England in 1804. After this period the constantly improved paper machine was soon introduced in various countries; in France, 1815; Germany, 1820; Austria, 1826.

When the raw material of the rag fibres proved insufficient, a search was made for paper-making material, and in 1840 the Saxon, Gottfried Keller, invented the ground-wood fibre. In 1847 Montgolfier and Wright invented the production of straw cellstuff, straw soda pulp. In 1853, Charles Watt and H. Burgess introduced the solution of pulp with caustic soda. In 1860, Routledge prepared esparto stuff from Alfa grass (*Stipa tenacissima*), and 1863, Tilghman prepared wood cellstuff (sulphite) by means of bisulphite of lime. The manufacture of these stuff products has been developed during the past sixty years, and to-day represents 75 per cent. of the total raw material used in the production of paper. The annual total production of paper has been estimated by Krawany to reach up to 6,000,000 tons.

Paper is a fibre felt, and differs in its nature according to its particular use. In the main part paper is applied for the purpose of writing, designing, printing, etc.; also as blotting and filter stuff and for wrapping, boxing, bagging, lining purposes, etc., and many others not mentioned.

The essential matter in all paper consists in carbohydrates, the cellulose. Although neither the constitution nor the molecular weight of any single one of the bodies forming the cellulose and starch groups has been incontrovertibly determined, yet we may safely assume that the celluloses used in paper-making are by no means of an equal composition.

Cross and Bevan have divided the cellulose according to the chemical existence into three groups: No. 1, into that of the cotton cellulose, the one which proves the highest resistance to hydrolytic dissolution, containing no active groups of ketones; No. 2, into the group of oxycelluloses more readily soluble hydrolytically, producing purpur in nitric hydrolization, and known to contain active ketone groups; No. 3, into the group of pseudo-celluloses, readily soluble in alkaline and acid hydrolytic solutions, producing during the solving process carbohydrates.

After this regulation we must accept the existence of another group—of combined celluloses.

The oxycelluloses of the second group we find in the vegetable kingdom, appearing in wood and woody fibres; also in the straw of cereals and in the esparto grass. These species have as yet been but imperfectly elaborated, and the technical processes applied for their production are but insufficiently investigated.

The various kinds of celluloses that may be different according to the plant stuffs used for their production will also present different qualities according to different methods applied in their production. For instance, the cell stuff from the same kind of wood isolated by means of calcium bisulphite is of different quality according to more or less energetic boiling with stronger or weaker sulphite of lime solutions. The quick boiling process, with strong solutions producing cellulose that will afford a less transparent and soft paper, while a slower boiling process, with weaker bisulphite solutions, will produce a more opaque and snappy paper.

Cellstuff prepared by the sodium process from the same sorts of wood, produces in the resulting papers different qualities, so that it must be presumed that the nature of the cellulose becomes changed according to the means applied for its production. The qualities of the celluloses appear also to be influenced by the methods and intensity of the drying process, and it should be ex-

cluded that the formation of hy cellulose could take place in the absence of acid. Still, it remains possible that different hydrates of the cellulose are formed and exist under positive conditions. This appearance could possibly explain the views of certain paper makers that cellulose dried on steam-heated cylinders makes a paper of less firmness than that made from cellulose not having been dried before it was run into paper. Although I differ in opinion yet there are many facts that could be explained in the existence of various cellulose hydrants—for instance, the difficulty to dry into a certain constant weight. As a further example, it may be mentioned that raw sulphite cellulose drying in the open air before washing is plainly discernible in the washed dried stuff in the appearance of white splints that will, however, disappear in their following admission into paper.

Even in plain mechanical processes as in the preparation of ground wood we observe interesting appearances. In the hot grinding processes, resulting in a softer and more elastic product it is allowable to think that, owing to the higher temperature of water in the wheel the same acts as a means of decomposition.

During the bleaching process of cellulose with sulphite a very interesting, but so far not scrutinized, process is observable. When the bleach touches the sulphite it produces a red coloration that will change into orange. After prolonged bleaching the color disappears, and the cellulose turns white. Of a similar nature appears to be the red color imparted on hard cellulose by liquid sulphate of aluminum. The oxidation caused by sour solutions seems to produce intermediary color substances, appearing, however, by continued oxidation into colorless combinations.

In the transformation of cellulose into paper further chemical changes are observable.

During the action of the beater, especially on sulphite, a cellulose, slimy matter is formed, whereby the transparency

the paper is increased, besides giving the sheet a better feel, also firmness and finishing quality. It seems likely that the cellstuff slime is formed by bodies similar to hydrocellulose; this is, at least, an attempt to explain an observed fact.

In the making of light cellstuff papers, so-called sulphite silk, I found that in the alkaline reaction in the beater by applying substantial coloring matter, such as kosmos red, benzopurpurin, etc., the transparency and feel of the paper enhanced by cellstuff slime would not compare with those obtained from stuff after sour reaction.

The performance of sizing forms the most important part in the greater number of paper qualities. The sizing takes place for the purpose of covering the fibre with a water-resisting substance.

The oldest sizing material is starch, although its action during said process was as yet not fully understood. The presence of starch in old Turkestan papers has been proven by Wiesner. The so-called process of animal sizing was applied thereafter. This animal glue, produced by boiling in water, of hides, bones, gristle, etc., is separated from its solution on the surface of the sheet, and made partly insoluble by lime.

Some questions relating to progress in our industry whereby great prospects would be opened may be mentioned: Researches in important by-processes, such as:—

First.—Finding the cause and prevention of chemical losses by oxidation and formation of thion acids in the preparation of sulphite lyes.

Second.—Improvements of many principal processes and reduction of their costs such as: The sulphite boiling process the same now being conducted exclusively on empiricism, in which a certain occasional and abnormal development appears inexplicable, and in regard to which it may be possible to manipulate the hydrolytic decomposition of wood in forming a primary reaction by the means and at a reduced cost.

There appears from the starting-point a prospect to be able to disclose half-cellulose in a colorless form; the same occupying a place between ground wood and cellulose, would become of industrial significance.

Third.—Utilization of waste products, including the question of off-water and lyes, especially from sulphite digesters.

Fourth.—The most important problem to solve exists possibly in the finding and working of new raw paper material—the waste, refuse, scrapings of textile fabrics, wild-growing brushwood, and exotic wood plants.

The growing demand for paper necessitates an increasing supply of raw material in keeping pace with the increasing culture of the human race. According to Krawany:—

Germany consumed in 1905 9 kg. per head.

England consumed in 1905 8½ kg. per head.

Austria-Hungary consumed in 1905 4½ kg. per head.

Spain consumed in 1905 3 kg. per head.

Russia consumed in 1905 1 kg. per head.

Roumania consumed in 1905 ½ kg. per head.

France, about 5½.

America (United States), 12 kg. or more.

Turkey consumes mostly cigarette paper.

In 1885, according to the "Centralblatt," for German paper-manufacture, Germany consumed 5 kg., England 6, Austria-Hungary 2, Spain 1, Russia 1, Roumania ½.



The Edson Fitch Co., of Etchemin Bridge, Que., a branch of the Diamond Match Co. are installing an auxiliary steam plant, being made by the Jenckes Machine Co., Sherbrooke, Que. It will consist of two 100-H.P. high pressure tubular boilers for Dutch oven setting, 150-H.P. engine, 200-H.P. feed water heater, and 6 x 4 x 6 boiler feed pump.

Manufacture of Soda Pulp

(From a United States Correspondent.)

The manufacture of soda pulp in the United States differs in some important particulars from the processes used in Canada, and the following account of the system employed in the mills at Willsboro, close to Lake Champlain, New York, will prove interesting. The process is based in the hydrolytic treatment of wood chips at a high temperature in the presence of caustic soda. It extends to a virtual isolation of the cellulose and the conversion of the extractives or lignone into soluble form.

The mills at Willsboro are made up of several structures, some used in the actual manufacture of pulp, and others in the recovery of valuable products. The details are so correlated that the liquid wastes are either pumped back to repeat their duty or are used in some other treatment.

Poplar logs, four feet in length, are cut to thin shavings or chips in a chipper and are carried by air blast to a storage bin in the top of the digester house. From this bin the chips are dropped through properly constructed flues into the digesters, four in number, each 27 feet high and 7 feet wide, with a capacity of 3,848 cubic feet. Each charge of chips consists of approximately four cords, which, when digested, make about 4,500 pounds of dry pulp. Upon each chip charge are poured 3,600 gallons of caustic soda solution having a specific gravity of 1.081 (11° Baume, or 16.42° Twaddell), corresponding to approximately 6 per cent. of Na_2O . The mass is digested eight hours at a pressure of 110 pounds of steam.

After the digestion process is completed the pulp is forced under pressure into a blow-pit, whence it is taken into large wash-pans and thoroughly washed. The drainage from these wash-pans is known as the first liquid effluent.

Sufficient water is allowed to remain in the wash-pans with the pulp to reduce the whole mass to a fluid state, so that it will run by gravity through an eight-

inch pipe to another building, where it is sieved to remove the coarse, undigested particles. The pulp which passes the sieves is pumped to a washer in which are three rotary screens of brass wire, sixty meshes to the inch, octagonal in cross section, set with the longitudinal axes horizontal. The dimensions are such that the distance from the rotary axis to the periphery is nearly equal to the depth of the washer. The pulp passes along under all the rotary sieves and is discharged into a small tank. The wash water which passes out into the side trough is known as the second liquid effluent.

Into the small tank which receives the wet pulp from the washer the bleaching water, a solution of chloride of lime having a specific gravity of 1.0211 (11° Baume, 4.22° Twaddell), is turned. Eleven pounds of bleaching powder are used to 100 pounds of pulp. From the small tank the pulp is carried to the bleach vats, which are three in number, fitted with revolving arms, which effect a thorough mixture of the bleach solution and pulp. The bleaching process assumes from six to eight hours. When complete the mass is reduced to a nearly fluid state by the addition of water, and the whole is pumped into large drainage vats fitted with porous bottoms, through which the water runs, leaving the bleached pulp in a fairly solid state. The drainage water is known as the third liquid effluent.

When the bleached pulp is thoroughly drained it is again loosened by a stream of water and pumped into a large storage vat, from which it is taken when needed, mixed in a small tank to the proper consistency with more water, and again sieved. The material which passes this screen is then carried to a cylinder machine and felted in the usual manner. The water with which the pulp is loosened in the bleach-drain vats, and which is run into the small mixing tank and that supplied to the Fourdrinier

machine, all take the same course, forming a fourth liquid effluent.

The caustic soda and bleach liquor supplied are prepared in appurtenant pits of the mill. The soda is obtained from the first liquid effluent, or water, drained from the wash-pans after washing the newly-digested pulp. It is a complex solution of dark color, containing caustic soda, lignin and various other wood extractives. It is of various degrees of concentration, for it is stored in tanks and used again and again for the same purpose until the degree of concentration is sufficiently high to permit an economical recovery of the soda. For the latter process three tanks are provided, to each of which runs a pipe from the wash-pans. Into the first tank is conducted the strong liquor which drains from the pulp as it comes from the blow-pit. The specific gravity of this liquor is about 1.0765 (13° Baume, 15.3° Twaddell). From the first tank it is pumped back into the blow pit, where it is again used to reduce the digested pulp to a fluid state. After the first liquor is drained from the wash-pan wash water is turned upon the pulp and the drainings are turned into tank No. 2. At first the specific gravity of this liquor is about 1.0688 (9.33° Baume, 13.76° Twaddell), but it is gradually diluted as more wash water is turned in. When the concentration has been so reduced that the liquor has a specific gravity of 1.0457 (6.33° Baume, 9.4° Twaddell) the remainder of the drainings are turned into tank No. 3. The contents of tank No. 2 are conducted to the soda recovery plant.

Tank No. 3 contains the drainage from the wash pans, which by dilution has been reduced to a concentration of 6° Baume and below. The contents are used to wash the pulp after the strong liquor has been drained into No. 1, and when again drained from the wash pans are turned into tank No. 2. This process saves the small amount of soda contained in the final washings, and when applying it again to an unwashed pulp the liquor is again concentrated sufficiently for use in tank No. 2 and in

the recovery process. The final washings of the pulp, the drainage from which is carried into tank No. 3, are made with condensed water from the Yaryan evaporators in the soda recovery plant.

The contents of tank No. 2, which have a specific gravity of 1.0457 to 1.0688 (6° to 9° Baume, 4.22° to 8.64° Twaddell), are evaporated in Yaryan evaporators until concentrated to a specific gravity of 1.2832 to 1.3063 (32° to 34° Baume, 56.64° to 61.26° Twaddell). The concentrate is then turned into rotary furnaces, where the lignin and other organic materials are burned off. The residue, issuing from the opposite end of the furnace, is composed almost entirely of carbon and sodium carbonate. This substance, known in the trade as black ash, is then passed through a leaching process, the liquid or recovered soda, which varies in specific gravity from 1.2572 to 1.2666 (26.66° to 27° Twaddell) being conducted to the causticizing plant; 87.31 per cent. of soda used in the plant is recovered.

The second effluent is composed partly of the wash water turned into it in the final washings in the digester house and partly of spent and weak bleach liquors pumped from beneath the bleach drainers. All of it that is needed is pumped back for use, while the excess is allowed to waste.

The third liquid effluent is conducted through pipes, and appears again as second liquid effluent, while the fourth liquid effluent is used in the process which produces the third effluent.

The causticizing process consists of converting the soda, which is recovered in the form of a carbonate, to a hydrate or a caustic soda by the application of caustic lime and by boiling. The result is sodium-hydrate in solution, with calcium carbonate as a heavy sludge, which is discharged into the sedimentation bed. The first causticization leaves considerable amounts of soda in the lime sludge, and five repeated washings are necessary to dissolve it all, the whole series being so manipulated that the

causticizing and washing processes form a continuous cycle.

The bleach plant consists of two solution tanks with rotary agitators. Let tank No. 1 contain the sludge remaining after the preparation of a bleach liquor and tank No. 2 be empty. Both tanks are filled with water; in tank No. 2 are placed 1,500 pounds of bleaching powder, making what is known as 3° bleach, equivalent to about 4.48 ounces per gallon. This bleach is drawn into the storage tank, and the clear solution

from tank No. 1 (which is a second extraction of the lime sludge in tank) is drawn into tank No. 2, and this are added 650 pounds of bleaching powder, also making a 3° bleach. The process is then repeated, the tanks alternating first with original bleach and then with an adjusted bleach.

The wastes are all run onto a sedimentation bed. The discharge from it is practically pure water, and causes no pollution to the stream that carries it off.



Imitations of Kraft Brown

By J. A. De Cew, Chemical Engineer, Montreal.

I note in your issue of September, an article on Kraft Papers, in which you refer to the spurious imitations of this very excellent kind of paper. I beg to offer an argument in defense of some of these imitations, which have a particular function and which mark a decided advance in paper making in their legitimate field.

Kraft Brown Papers are composed of impure cellulose fibres, on which the undissolved ligno-cellulose acts as a very effective binding material. Chemically and mechanically, the fibres are isolated in such a way as to produce the greatest tenacity and felting power. This allows a paper to be made of light weight but still very strong.

The so-called imitation Kraft possesses these same qualities, only in a lesser degree. However the process of manufacture is entirely different from that of the Kraft. The fibres for Kraft are obtained by stopping the cooking before the ligno-cellulose has been completely dissolved. In the imitation Kraft no chemical at all is used. The wood undergoes a special boiling process which brings it into a very soft condition. It is then ground in the same way as the ordinary ground wood, but instead of the fibres being ground into fragments, the fibres are pulled apart almost in their entirety. The result is a long

fibred stock containing all the ligno-cellulose originally in the wood.

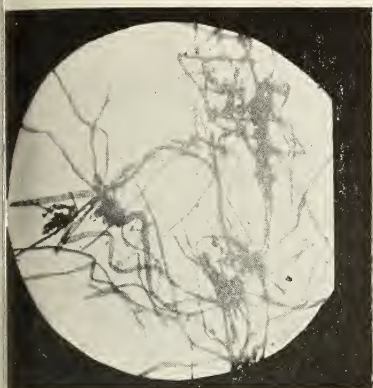
From this, a strong brown paper can be made without any addition of any other fibrous constituent and without using any color. Hence it is in a class by itself as a papermaking material for the lower priced grades of papers. Microscopically, the fibre isolated in this way



No. 1. Cellulose fibres from spruce wood, soda process.

has very much the same appearance as the cellulose fibre, so that it is necessary to use a color reagent to differentiate them. Of course in a paper composed of these fibres there are many evidence

their woody origin by which they can be identified. The differences are illustrated by the accompanying micro-photographs.



No. 2. Impure cellulose fibres, from Kraft Brown Paper.

It will be observed that the cellulose fibres are delicate, smooth and pliant, illustrating their suitability for a soft, strong paper.

The Kraft Brown fibres are rough, rugged and knotted together in a way



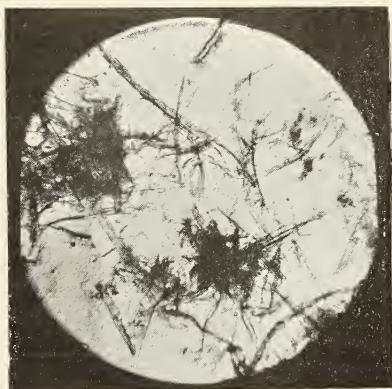
No. 3. Wood fibres from imitation Kraft Brown Paper.

This illustrates the difficulty with which they are torn apart.

The Imitation Kraft fibres have a rough, stiff appearance, the surfaces of the fibres being very rough, which causes them to hold each other quite tenaciously and to be felted closely together.

The ground wood consists nearly all of fragments containing very few fibres.

Of course every class of fibre has particular uses in paper making, and also its limitations. Where a light color is required, this fibre is not suitable, but where it is not, as for instance in the brown wrappings, it is bound to occupy a very important position. As a substitute for fibre stock in building papers this material will doubtless find a great



No. 4. Fragmentary fibres as occurring in ground wood.

field, and if it were produced in large quantities would find a ready market in this direction. This suggests a means of effecting still further economies, by having the rougher classes of paper made up at the grinding plant, thus doing away with the necessity of paying freight on the two tons of water which usually accompanies every ton of moist pulp.

It will undoubtedly very soon command a place among the paper making fibres, and will be a decided advantage where strength and economy are the points to be considered.



SALE OF THE CUSHING SULPHITE MILL.

The Cushing Sulphite Pulp Co.'s property at Fairville, N.B., including pulp mill, machinery, fixtures and plant, was on the 21st ult., disposed of by the liqui-

dators. The equity of redemption was sold for \$30,000, the highest tender being that of Thos. McAvity. The interest and principal of the bonds amount to \$420,000, thus bringing the purchasing price up to about \$450,000. There were several tenders varying from \$30,000, the purchase price, to \$11,000. Among the tenderers was G. S. Cushing. It is understood that the tender of Mr. McAvity was made on behalf of Captain Partington, one of the parties in the numerous cases which have occupied the attention of the courts, both local and Dominion during the last five years. That the mill has changed hands is not likely to make any great change in its management. The sale will not make any difference in the various suits which have yet to run their course. The price is regarded as a very satisfactory one and shows that the purchasing parties are of the opinion that a pulp mill can be run at a profit. The initial cost of the mill's construction was slightly over half a million of dollars. It began operations in the fall of 1900.



THE COLONIAL PREFERENTIAL TARIFFS AND CANADA.

In reply to enquiries by the "Canadian Journal of Fabrics," the Deputy-Minister of the Department of Trade and Commerce writes:—

"I have yours asking for information re preferential tariffs of Australia and South Africa touching the textile and pulp and paper trades.

"In so far as Australia is concerned Canada has no preferential arrangement with that Commonwealth; and it is impossible to give any information with reference to their tariff rates, as the matter is at the present moment under discussion of their Legislature; and until the bill now before the Legislature becomes law and the text of it can reach this country by mail, it will be impossible to give any information with reference to it. The telegraphic notes that appear from day to day in the papers

are too meagre to form a basis of opinion as to what will be the eventual result. With reference to South Africa the full text of the South African Customs Union Tariff and Provisions with reference to preferential rates can be found in the April 'Monthly' of the Department, copy herewith—vide pages 1752 to 1772, which covers all the information possible to give on the subject. Canada is on the preference list as regards South Africa."

The new tariff of the South African Customs Union, referred to by Mr. Parmelee, provides that the parties to the preferential tariff are the Cape Colony, Natal, the Transvaal, Orange River Colony, and Southern Rhodesia with their dependencies, Basuto, Bechuanaland, Swaziland and Barotseland (Northwestern Rhodesia).

The following is a list of articles relating more or less to the pulp and paper trades in which Canada will share the rebate indicated.

CLASS I.—SPECIAL RATES.

Cards, playing, per pack, 6d. Rebate upon goods the growth produce or manufacture of the United Kingdom and reciprocating British colonies, nil.

CLASS II.—MIXED RATES.

Printed matter (a) advertising, including catalogues, price lists, almanacs, calendars, labels, posters and show cards per £100—duty, £25. Or 2d. per sheet whichever shall be the greater. (b) account and check books, printed stationery and forms, company reports, share certificates, and promissory notes, cards, (Christmas, New Year's, birthday, post, and pictorial), directory guide books and hand books, relating to South Africa, and boxes, cardboards and bags. Duty, £25.

CLASS IV.—THREE PER CENT VALOREM.

Bookbinders' requisites, consisting of boards, cloths, leather, marble paper, skin, thread, tape, vellum, webbing, gold and silver leaf, parchment, imitation leather, binders' paper, and

board and linen board. Felt, rubberoid, white, and similar substances for building purposes. Hose, conveying, India rubber, unmanufactured. Machinery for bookbinding and printing.

Paper, plain, in its original mill ream, wrapper, or reels, not less than 16 in. by 15 in. in size, not including feint or ruled papers, or blotting, brown, cartridge, drawing, manifold, packing, or issue papers.

Printing, lithographic, and ruling inks, other composition and stamping colors, and printers' bronze. Wood, either unmanufactured or ceiling and flooring boards, planed, tongued and grooved.

C. B.—The whole of the duties on this class will be rebated under Article III. of the convention.

CLASS V.—FREE.

Atlases, charts, globes, and maps. Books and music, printed, including newspapers and periodicals, not being foreign unauthorized prints of any British or South African copyright work, the importation of which is prohibited and being advertising matter elsewhere enumerated.

Printed official consular stationery. Engravings, lithographs, and photographs, not including enlargements or reproductions of photographs, and not being labels or advertisements elsewhere enumerated.

Diagrams, designs, drawings, models and plans.

Paintings, pictures, picture-books and etchings, not being advertisements or labels elsewhere enumerated.

Good meal and wood pulp.

CLASS VI.—GENERAL AD VALOREM RATE—15 PER CENT.

All goods, wares, and merchandise not elsewhere charged with duty, and not enumerated in the free list, and not prohibited to be imported into the union, shall be charged with a duty of 15 per cent. *ad valorem*.

ARTICLE III.

The rebate of the customs duties shall be granted on any goods and articles,

the growth, produce or manufacture of the United Kingdom, imported into the union for consumption therein to the extent following:—

(a) In the case of goods and articles charged with customs duty under Class I., the amount shown in the column indicating such rebate.

(b) In the case of goods and articles charged under classes II., III., IV., and VI., 3 per cent. *ad valorem* on such goods and articles.

Provided that the manufactured goods and articles in respect of which such rebate as aforesaid shall be granted shall be *bona fide* the manufactures of the United Kingdom, and that in the event of any question arising as to whether any goods or articles are entitled to such rebate as aforesaid, the decision of the minister or other executive officer in whom the control of the Customs Department immediately concerned is vested, shall be final.

ARTICLE IV.

A rebate similar to that for which provision is made in the last preceding article shall be granted in like manner and under like provisions to goods and articles the growth, produce or manufacture of any British colony, protectorate or possession, granting equivalent reciprocal privileges to the colonies and territories belonging to the union, provided that no such rebate shall be granted in the case of any particular colony, protectorate or possession until on and after a date to be mutually agreed upon and publicly notified by the parties to this convention.



ADVANCE IN SULPHITE.

The results of the placing of the organization of sulphite manufacturers on a permanent basis are already making themselves felt. Practically the entire production of the country is represented in the Association. Prices have been put on a more stable basis and, instead of the unprofitable competition which has prevailed for some time past, a unifor-

munity of price is likely to be obtained which cannot fail to be of great advantage to all branches. The new prices, as agreed upon at a special meeting in Boston on the 21st ult., are as follows:—\$1.95 per hundred or \$39 per ton to all points in New York State, New England and the neighborhood of Philadelphia, and \$2 per hundred or \$40 per ton to all points in the western or southern States. A reduction of \$1 per ton on sales of 5,000 tons or over will be allowed purchasers in the immediate vicinity of or within a ten mile radius of mill. This schedule was arranged for with the unanimous approval of all present, the manufacturers of sulphite having been placed under disadvantage by the keen and unwarranted competition to which they have been subjecting themselves. The high cost of raw material and of labor has also militated against profits.

This advance of sulphite will no doubt stiffen the views of paper manufacturers, particularly those who make manilla and fibre.



TROUBLE AT BUCKINGHAM.

At the Jas. Maclaren Co.'s lumber mill at Buckingham, Que., a serious affray took place on October 8th, between 200 former employees and some special constables who were guarding a band of strike-breakers. Two men were shot dead, Thos. Belanger, a labor leader, and Xavier Therriau, a striker; two detectives badly wounded, (one of whom died this week), and several policemen and strikers more or less seriously injured. The trouble started five weeks ago when five hundred men asked for an increase of wages of 25c. per day. The company could not see their way clear to this and responded by closing down, which was a convenience rather than otherwise, owing to the low water and consequent high cost of operations. The actual trouble started in the decision of some of the men who had remained loyal, to move an accumulation of logs, obstructing navigation in the river. These were accompanied by

about forty constables who had been gaged as watchmen of the property. Soon as the non-unionist men began work, the strikers assembled in force. Belanger, their leader, threatened violence unless work was stopped. A general mêlée ensued, accompanied by bullets and stone-throwing. The mills were called out and, under Col. Hodges, preserved order during the night. The following day a sensation was created by the arrest of Albert and Alexander Maclaren, two partners in the lumber company, Jas. Kernan, brother of the chief of police, J. E. Vallalee, Manager of Buckingham, and general manager of the Maclaren Co., besides some of the strikers. They were released next day, however. The Quebec Government is making a strict enquiry into the unfortunate occurrence. It is also attempting to bring the dispute about wages to a satisfactory settlement.



THE FORESTRY CONVENTION

The convention of the Canadian Forestry Association in Vancouver on the 26th and 27th ult., was a great success, both in point of attendance and interest. The chair was occupied by Prof. Stewart, president of the Association.

Earl Grey delivered a short but eloquent address in which he referred to the forests as the natural reservoir of the agricultural wealth of the country, and that they preserved its rivers.

Short addresses were given by Lieutenant Governor Dunsmuir and Premier McBride.

Professor Stewart read a lengthy paper giving statistics showing the increase of forest wealth as compared with the increase of population and predicted that high as the price of lumber now is, it would go still higher.

Overson Price, representative of the United States forestry service, read an eloquent address in which he predicted that forestry preservation would

years be a remunerative source of income to the United States treasury.

Int.-Governor Bulyea, of Saskatchewan, and Hon. Mr. Sweeny, Surveyor-General of New Brunswick, also addressed the convention.

At the afternoon session papers were read by Hon. R. F. Green, R. H. Alexander, and F. W. Jones. Mr. Alexander and Mr. Jones spoke strongly of the necessity for more stringent methods of dealing with forest fires.

Hon. Mr. Green in his paper showed that the Government was doing, and gave figures indicative of the rapid advance of the lumbering industry in British Columbia.

A strongly worded motion was presented by Mr. Rowley, manager for the Eddy Co., in Hull, seconded by J. Whyte, Pembroke, urging the Federal Government to prohibit the export from Canada of all kinds of saw and pulp timber.

It was strongly opposed by Duncan MacP., and W. Higgins, of the Vancouver Loggers' Association; and on being put to the meeting was lost by a large majority.



NEW INCORPORATIONS.

The United States production of sulphur last year was 181,677 tons, valued at \$706,560, compared with 137,292 tons, valued at \$2,663,760 in 1904.

The Toronto Daily Standard Publishing Co., Ltd., has received a charter to carry on the business of newspaper and mail publishers, with a capital of \$100,000. Provisional directors are, H. C. C. J. F. H. McCarthy, and M. L. Brown.

The United Canada Printing, Engraving and Publishing Co., Ltd., Ottawa, has been granted a Dominion charter to carry over and continue the business of J. Grace, in Ottawa, as newspaper printer and proprietor, and job printer. Its capital is \$20,000.

The United States Board of General Land Officers holds that no duty attaches to the importation of cross-cut pulp wood.

The case arose from the United States Customs authorities exacting a duty on this article imported by the Detroit Sulphite Pulp and Paper Co.

The Sunbeam Specialty Co., Toronto, has been granted an Ontario charter authorizing it to manufacture and deal in, among others, articles made of wood, cloth, or paper, or a combination of them. Share capital is fixed at \$40,000. J. R. Meredith, and M. C. Cameron are among the names mentioned.

The St. John Pulp & Paper Co., Ltd., Mispec, has been incorporated under New Brunswick Laws to purchase, erect, equip, own, and operate factories for the manufacture of sulphite, paper, and goods made of wood. The capital stock is \$275,000. Provisional directors are J. McAvity and H. N. Stetson, of St. John; G. C. and F. B. Cutler, of Boston, and J. L. Cutler, of New York.

The Canadian Pacific Sulphite Pulp Company, Ltd., of London, England, received a license authorizing it to carry on business in British Columbia, with head office at Vancouver. The authorized capital is £107,000, divided into 75,000 shares, of £1 each, called A, 30,000 "B" shares of the same amount, and 40,000 "C" shares of 1s. each. The company's object is to acquire the whole or a part of the capital stock of the Oriental Power & Pulp Co., and to acquire timber estates, etc., develop and colonize lands, etc.

The York Pulp & Paper Co., Toronto, has been incorporated with a capital of \$400,000. Provisional directors are given in the "Gazette" as follows:—E. M. Dumas, gentleman; J. W. Coe, solicitor; Wm. Bullock, capitalist; G. O. Merson, accountant; and H. E. Pearce, capitalist, all of Toronto. Its object is to manufacture, sell, and deal in wholesale and retail paper of all kinds, and its various products, pulp and raw material therefor, and to purchase and operate timber limits, processes, patents, companies or businesses of like nature, to construct or acquire railways and vessels, etc. At this stage the promoters do not care to divulge their plans.

LITERARY NOTES.

One of the most attractive books at the recent exhibition of the Printing and Allied Trades in London, England, was that of Raphael Tuck & Sons, Ltd., whose reputation as art printers is world-wide. The company had a remarkable collection of pictorial post-cards and Christmas cards, and are continually bringing out novelties in these lines. This is no doubt due, in part, to a series of prizes the company is offering for designs for cards, conditions of which can be learned on application to the Canadian branch in Montreal, or to the head office, Raphael House, Moorfields, London, England. One of the novelties designed by one of the heads of the company is a series of Christmas cards showing animals with moving limbs, the paper being stamped to the form of the animal.

The "Monetary Times" has issued the second of its remarkable Canada Expansion Numbers. The first was devoted to Cobalt, and the success of our contemporary's work in making known to the financial world the marvellous wealth possessed by Northern Ontario is evidenced by the number of enquiries still coming forward from the United States and Europe. The present number talks the wonders of Winnipeg and the West, and is even a more striking success in the realm of special journalism than its predecessor. Its main object is to bring the resources of Canada into close contact with the money of Britain, Europe, and the United States, which is so necessary to their development. This object it attains in a manner which is unique, because, while all the old-time conservatism and reliability of the "Monetary Times" are retained, there is enough dash and breeziness in these specials to make them "go" with any reader. Several illustrations give basis to an onlooker's growing belief that Winnipeg is no illusion. We will look with interest to the "Monetary Times" third Expansion Number. The West is great, though not quite so overbalancing to the rest of the Dominion as it thinks itself. A Special Number devoted say

to the Atlantic Provinces would make this clearer.



TRADE ENQUIRIES.

The following enquiries relating to Canadian trade have been received at Ottawa. The names of the firms making these enquiries, with their addresses, can be obtained upon application to the "Superintendent of Commercial Agencies, the Department of Trade and Commerce, Ottawa," or the "Pulp and Paper Magazine," Toronto.

1056. Paper.—A large English paper mill, having branch mills throughout Britain, desires to get in touch with Canadian buyers of all descriptions of paper.

1141. Wood pulp.—A Manchester firm wishes to correspond with Canadian exporters of wood pulp.

1182. Envelope paper.—A firm of wholesale stationers and envelope manufacturers in Ireland desires to get in touch with one or two firms in Canada manufacturing envelope paper.

1208. Paper.—A firm in Birmingham wishes to get in touch with manufacturers of paper for stationery purposes.



Mill Matters

The Union Bag and Paper Co.'s paper mills and saw mills at Grenville are being operated successfully. A considerable pulp wood has already been shipped to the company's factories.

John A. Hartle, employed as foreman at the Toronto Paper Co.'s pulp mill at Cornwall, was so badly scalded that he died within two days of the accident. Williams, his assistant, was also injured.

The rubber manufacturers in the United States have advanced prices about 10 per cent. to the paper mills for the reason that cotton duck, which is used in hose, belting and packaging, has been advanced 50 to 75 per cent. Pure rubber has rapidly advanced in price because of the extra demand from

crackers of automobile tires and various manufacturing industries. Rubber manufacturers will give the paper trade the same quality of goods as heretofore, notwithstanding the very heavy advance in price of the raw materials.

Williamson & Crombie, of Kingsbury, Que., will put up a burner to consume refuse from their extensive mills. It will be erected complete by the Jenckes Machine Co., Sherbrooke, Que.

The rivers in the Quebec district since the least rains are again at their normal level, which they lost last month. It is remarkable that all rivers which have their sources in the range of Laurentide Mountains do not come as low as the rivers from the Great Lakes which have been as low for the last 35 years.

The International Paper Company's net earnings for the year ending June 30, 1900, were in the neighborhood of \$3,000,000, about the same as last year. The company, however, it charged off \$750,000, so that it will not be obliged to do now, but at the surplus this year, after meeting dividends and other fixed payments, will make a much better showing.

The Silsby Lumber Co., of Westbury, Vt., are putting up a large sawmill plant on their extensive limits recently acquired near St. George de Cap, Que. The machinery is being furnished complete by the Jenckes Machine Co., Limited, the boilers being installed at their St. Catharines works, and the balance of the plant at Sherbrooke.

The Reeves Pulley Co., of Columbus, Ohio, report a most satisfactory business on their celebrated "The Reeves" Multiple Speed Transmission during the past weeks. They have closed contract with the Champion Coated Paper Co., of Hamilton, Ohio, for one No. 11 and one No. 9, Wayne Paper Co., Hartford, Conn., a No. 10, Union Bag & Paper Co., of Sandy Hill, N.Y., a No. 8, J. P. Co., of Beaver Falls, N.Y., a No. 10, Patterson, Gottfried & Hunter, New York City, a No. 7. They also advise that their trade on the smaller sizes has more than doubled within the past two years.

Jos. Ford & Co., of Portneuf, Que., had one of their mills closed down for repairs. It has now resumed operations.

The Belgo Pulp & Paper Co.'s mills at Shawinigan Falls have closed down, partly, we understand, on account of labor troubles.

A new machine has just been installed in the rag room at the Lincoln Paper Mills, Merriton, Ont., capable of doing four times the amount of work of the old one.

The pulp mill (ground wood) of the Jacques Cartier Pulp and Paper Co., at Pont-Rouge is now undergoing extensive repairs, and will resume work in another couple of months with capacity increased threefold.

Latest cables from London state that reorganization of the Imperial Paper Mills is going on quite satisfactorily. Some little time must necessarily elapse before the work is completed, but so far everything is going on smoothly.

The Canadian Pacific has just finished a siding from their main line to the mill of Montreal Paper Co., at Pont-Rouge Station. This mill is now able to handle in and out freight to the best advantage. Three elevators are kept busy taking up manufactured paper to the warehouse, where it is loaded into cars, and brings down the raw material to the several departments. There is a rumor that an American syndicate has just approached the proprietors of the Montreal Paper Co.'s mills with the intention of buying their mills. Their mills have the biggest output of felt and building papers in Canada, with three mills, one at St. Basile, head office, one in Portneuf and the one in Pont-Rouge with combined capacity of 50,000 lbs. per 24 hours. The last-named mill is now running 23,000 lbs. per day, and the power is strong enough to equal four times more or around 100,000 lbs. when finished.

The contemplated extension of the Quebec and Lake St. John Railway will be interesting news to pulp and paper manufacturers, as such a work would open up an immense area of pulp-wood lands not now accessible. A despatch to

the Toronto "Globe" states that a party of New York capitalists is in Quebec inspecting the line, accompanied by G. LeMoine, President, and J. G. Scott, Manager of the company. The New Yorkers express themselves as favorably impressed with the country and disposed to back the scheme. After reaching Roberval they took teams and drove to Chute a l'Ours, thirty miles northwest, and passed through a beautiful country under cultivation by new settlers, and finally reached a cataract with a capacity of thirty thousand horse-power, that gave them an idea of the vast timber limits and waterpowers of the country. The proposed line will also run through the Chibugamoo mineral district, where rich deposits of gold, silver, copper, and asbestos have been located.



POLISHING PAPERS.

Polishing papers constitute an important class. They deserve the attention of paper manufacturers, who should always be on the look-out for increasing the output of their production.

This class includes glass papers, sand papers, silex papers, emery papers and other similar products employed in numerous factories. They are generally indispensable and cannot be replaced with other productions.

Manufacturers and technicians are interested, says "Le Moniteur de la Papeterie," in understanding the preparation of papers, for the nature of the paper exercises an important function, without being the active principle. Of course, this value is subordinated to the quality of the polishing product, but it is important to study the character of the paper itself. It is the convenient, advantageous and cheap material for transmission of the substance with which it is covered. There are several polishing agents which cannot adhere to paper and require textiles, but these fabrics are dearer and have other disadvantages. Some products have grains so fine that only paper will answer as

the vehicle. We will exhibit the relation existing between the nature of the paper and the fixing of the polishing agent.

Polishing papers are composed of paper itself, of the polishing agent, of a size or cement providing adhesion.

We will speak first of the use of glass as a polishing product. Glass papers are very much employed in industries of wood and ivory. More than so hard as glass may also be polished by means of this paper, and may serve with advantage for smoothing or levelling coatings of color and varnish. The degree of polishing secured depends on the greater or lesser fineness of the ground glass. For objects pieces of glass with pointed edges are employed. The rounder the edges are the less the resistance presented to the surface to be polished. The method thus made use of is first washed with strong lyes, then heated with flame until all the substances are removed which it may be covered are consumed. The heated mass is poured into a receiver filled with cold water, at the bottom of which the pieces of glass are deposited, and thus separated from carbonised substances. They are reduced uniformly by means of a grid and a sieve is employed for assortment according to the various degrees of fineness desired, from a coarse grain to the most delicate powder.

The paper designed for this preparation must be capable of preserving its condition for a long time. Its durability should correspond to that of the glass with which it is to be covered. It should contain as little mechanical pulp as possible, so as not to be brittle. The fibres should be resisting. When the paper loses its value, of course the polishing product is lost.

The adhesive material requires certain qualities in the paper. The resistance which the glass will meet when exposed to friction requires that it should be fixed as solidly as possible on the paper. The layer of size or cement should be comparatively thick, and

strongest papers and non-absorbing papers are the best. In order that the adhesive material should be uniformly applied, the surface of the paper should be smooth, without any roughness. The material is applied hot. Before it comes to dry—that is, when it is rolled on—the operation of distributing the ground glass on the paper by means of a sieve is commenced. After the paper is pressed with a roller, the excess of the grains of glass is fully removed; then the paper is finished.

In the same way, the preparation of paper for removing rust from objects of iron or steel is accomplished. The paper, more resisting than glass paper, is employed for polishing the hardest objects.

In the preparation of emery paper there are complicated machines, which regulate the size and the emery, and also strip the paper into sheets, the paper is then rolled on spools.

The pulp for polishing papers is often made from old nets, ropes, strings, and similar waste.

In trade, emery papers, called water-proof, are to be found, which, however, have nothing in common with ordinary water-proof papers, such as parchment. They have received this designation because both faces are covered with emery powder. Thus, the paper is less exposed to moisture than if but one side was covered. It is also covered with a waterproof cement, composed principally of linseed oil and African

the action of chlorine gas, whereby the incrusting substances (lignines) are submitted to such an extensive oxidation or chlorination that by treating the same with hot water, or, if necessary, with milk of lime or with a weak alkaline solution, the said incrusting substances can be removed.

The disadvantage of this process is the comparative uncontrollability of the action of chlorine. In Sir William's process, the chlorine is diluted with air to such an extent that its direct action is largely mitigated with the result that cellulose is obtained in a fibrous condition and of a practically uniform good quality. The gas is kept cool during the earlier stages of chlorination. When the chlorine has all been absorbed by the fibre, the latter is flooded with water. Provision is made for any ill-effects of the fibre being allowed to remain in contact with the fibre, which would result in its being partially turned into oxycellulose, and the quality being impaired, by means of such excess being converted into chloride of lime.

The chief point in the new invention consists in the control it secures over (1) the amount of chlorine brought into intimate contact with the fibre, (2) the period during which the chlorine is allowed to act, and (3) the strength and temperature of the acting gas. Thus excessively intense action of gas is obviated, waste thereof is prevented, and the production of high quality cellulose fibre is ensured.

Sir Wm. Mather's specifications are: (1) The manufacture of cellulose from raw unspun vegetable fibre by chlorinating and otherwise treating the fibre in bulk in a practically continuous manner without handling or disturbing the bulk during or between the various stages of the process. (2) In the manufacture of cellulose from raw unspun vegetable fibre; confining the fibre throughout the process within a chamber or cell between sieves or diaphragms which allow fluid but not fibre to pass; and converting by the successive action of appropriate fluids—such as dilute alkali, water, and chlorine diluted with air—caused to circulate



IMPROVED METHOD OF PRODUCING CELLULOSE.

Sir W. Mather, of the Salford Iron Works Manchester, has patented certain improvements for the manufacture of cellulose from vegetable fibre. To a certain extent the process follows that described by Dr. Carl Kellner, in which portions of the plants treated with water or with milk of lime, or with a

to act upon practically every portion of the fibre and to agitate the fibre particles in a manner to ensure throughout the mass of fibre practically uniform and effective treatment; the amount of chlorine brought into intimate contact with the fibre, the period during which such chlorine is caused to act, and the strength and temperature thereof being so controlled as to prevent detrimental action of the gas and to ensure production of high quality cellulose fibre.



PULP MARKETS.

Toronto, Oct. 13, 1906.

Continuance of low water in the pulp-wood sections of Canada and the United States, accentuated by the closing down of the Burgess mill, makes conditions very onerous in the trade. Prices heretofore have been so low that it is doubtful if any of the mills have been making money. They have now gone up materially, and there is every reason to believe a further rise is inevitable. The production of ground wood has been affected not only by the smallness of the precipitation, but by the extremely hot weather, which caused unusual evaporation in the water-power sections. Recent light rainfalls will no doubt help to some extent, but unless they are followed by a sharp fall the ground wood situation will be precarious. This is rendered worse by the uncertainty in the labor market, in spite of the greatly increased rate of wages, and the better living enjoyed by the men.

Prices are quoted as follows:—Ground wood, delivered, per ton, as to quality, \$20 to \$25; pulp boards, \$32 to \$35, sulphite pulp, \$38 to \$40. These prices for ground wood refer to what little there is in the market for outside deliveries, the home consumption being practically all under contract.

In Great Britain the manufacturers seem indisposed to believe that a general advance has taken place, and buying is slack. However, some parcels of pulp of fair size have been taken at the en-

—The Leeds and Hull correspondents of "Canada" writes: Canadian mills are seeking a market in the North of England, but owing to the competition which exists, it is practically impossible to conduct a trade from Canada. English agents are a vital necessity, and wherever possible these agents should be well-known stationery firms having travellers covering the country. English manufacturers will not admit an outside competitor without a struggle. Recently the United States paper trust had to draw after having tried to flood the British market with American-made paper. The system which some Canadian mills have in asking for the price which English buyers are prepared to give is not to be advocated. A merchant, in reply to this, states: "Canadians send us in their own conditions same as others do; we then consider them all and buy in the cheapest market." This characterizes the trade, as English manufacturers and buyers will not divulge their terms, and those having catalogs take good care they do not get into the hands of their competitors. To appoint an English agent and fully equip him with prices, discounts and samples is as much importance in this trade as any other, as it is only by regular contact with English buyers that Canadian mills can hope for trade. Without doubt a great field exists in the north for Canadian paper. In Yorkshire alone there are over 110 paper merchants and manufacturers, not to mention the enormous newspapers.



The "Paper-Makers' Monthly" points out that as rosin is the sap of the tree which protects it from rains and insects and gives it power to resist water, as in preparing chemical paper, particularly soda wood, the resins are practically eliminated and the paper obtained almost waterleaf, the paper made from it will be also waterleaf. It suggests that manufacturers should imitate nature and put back the resins in order to make the paper ink-resistant.

NORWAY'S PAPER INDUSTRY

The export of paper from Norway is gradually increasing. The exports for which official figures are given were in value \$2,179,000 in 1899 and \$2,817,000 in 1904. Official figures for 1905 are not yet available, but if recent newspaper articles can be relied upon the export of that year was larger than for any previous year. The countries to which the largest exports were made in 1904 were Great Britain, Germany, and Holland. The finer grades of writing and book paper are imported from Germany, England, the United States and Belgium. Germany is Norway's most formidable European competitor in paper production. The larger German mills have formed a syndicate, whose object it is to control the yearly production of paper and to regulate prices and output. It is claimed by Norwegian paper manufacturers that the prices charged by the Germans for export goods are from 10 to 15 per cent. lower than the prices charged in the home market.

Two new paper mills were built in Norway in 1905. The Norwegian paper manufacturers depend on their splendid water powers, easy access to timber, and low wages paid employees for ability to meet competition and continue their business with profit. Some of their wrapping papers are now finding a limited but increasing market even in America.

E. Sontum, the Canadian Commercial agent at Christiania, Norway, writing last month to Ottawa, says the new mills now building in Norway and the enlargement of existing mills will cause an increase in the Norwegian output of about 50,000 tons per year. It is not known how much the mills now building or planned in Sweden are calculated to produce, but it is considered that the manufacturers reckon on a total increase of production in Norway and Sweden of about 130,000 tons in the two years 1907 and 1908. The Norwegian and Swedish cellulose produc-

tion has grown in the last seven years (including 1905) by some 240,000 tons, that is to say, from about 150,000 tons in 1898 to 394,000 tons in 1905. Norwegian country communities buy forest lands in order to prevent too extensive felling of trees.

In my report of July 4, adds Mr. Sontum, I mentioned the increasing manufacture of wood-flour. Since then I have had inquiry from Canada about this article from firms who wanted to purchase. Upon investigation, however, I learn that the Norwegian wood-flour mills have contracted their output even for several years ahead, at least the largest of them. It thus seems to be a large demand for this article.

U. S. Consul-General Bordewich, writing from Christiania, gives his views as follows: The modern paper industry of Norway may be reckoned to date from the same time as the chemical pulp industry, about the year 1880.

Although writing paper has been manufactured in Norway for one hundred years, the quality of the article produced is not of the best, and the finer grades of such papers are therefore still articles of import. Rags are largely used in the mills producing writing paper. It is in the manufacture of printing, news, and wrapping papers that the Norwegian mills excel. The wood employed in the mills is mostly spruce. Connected with the paper mills is generally found a sawmill, where the butts of the large trees are sawed into lumber, while the tops, branches, and small trees which have been cut to thin out the forests go to the pulp and paper mills.

Both mechanical and chemical pulp are used by the Norwegian paper mills. The pulp is reduced to an even, consistent mass, containing about 60 per cent of water, and conducted into a receptacle where sizing is added; thence through the paper machine, where it is evenly distributed in a thin layer on a wide endless belt, which passes through a system of hol-

low horizontal rollers. These rollers are heated by steam; they are placed side by side, with very little space between, and turn on their own axis on a vibrating metal frame. The belt holding the layer of pulp is carried along by the rollers, and the thin mass dries quite rapidly. The width of the paper is determined by dividing belts, placed on each side of the main belt or bed, holding the unfinished paper. The dividing belts may be set apart for any desired width of paper. When the paper is dry, it is finally passed between two cloth-covered rollers, where it is given finish and luster; thence between another set of warmed rollers, which completes the operation. As the paper escapes it is received on a revolving reel and cut into the desired lengths.

Trial has been made with Canadian spruce, which was sent over here and used in a Norwegian paper mill for experimental purposes. The Norwegians claim that their own wood is superior, for the reason that it holds less resin than the Canadian. The mills at Skien employ about 1,000 hands, have 8 machines, and turn out some 35,000 tons of paper annually. A reel of their newspaper sometimes contains as much as 7,500 running meters (meter=39.37 in.), and weighs nearly a half a ton. The wages of the laborers vary from 40 cents to \$1.10 per day. Norway possesses a number of valuable water powers, well distributed through the timbered districts. Transportation facilities are good and wages low. The paper machines used are partly of home manufacture and partly imported from Germany and other countries. One, called a "machine continuë," of Belgian make, appears to be in favor, used in connection with separate surfacing and cutting machines.

[As will be remembered by readers of this magazine, reports from other sources went to show that the Norwegians acknowledged the Canadian wood to be first-class, and equal to their own].

SCANDINAVIAN PULP.

"Farmand" says: The market Scandinavia for mechanical remains quiet, but with a firmer undertone. Mechanical wood pulp is being sold at a price that leaves the most meagre profit to mills, and consequently new mills will not be erected, and the cost of pulp is rising, not only in Sweden but in Canada as well, while newspaper mills are being erected or old ones enlarged. We hear of new mills in Belgium, and we understand that the competition from American paper mills is likely to be severely handicapped, because the cost of making paper in America has gone up considerably.

Cellulose is firm for this and for next year, but is bound to go lower, as all the new mills are fairly under way.

It seems as if buyers, especially on the Continent, have made up their minds to proceed with making contracts for 1907, several firm offers having been made. Sellers are, however, holding off, and the market seems likely to be firmer.



CANADIAN PAPER IN BRITAIN.

Last year there was an enormous increase of the imports of paper into the United Kingdom from Canada. The following figures for the past five years follow.

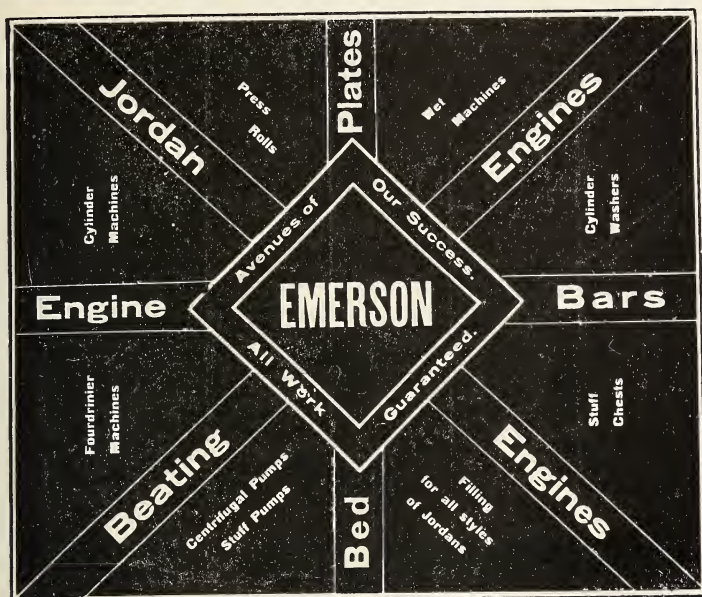
Unprinted.

	Cwts.	£
1905	368,488	185,000
1904	166,967	90,580
1903	129,857	60,620
1902	157,193	82,650
1901	184,298	96,020

Straw, Mill and Wood Pulp Boats

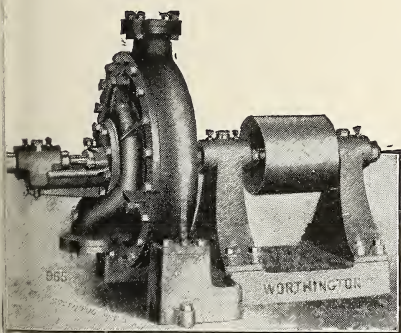
	Cwts.	£
1905	127,169	55,580
1904	100,408	44,630
1903	82,754	38,680
1902	59,746	24,970
1901	40,234	19,960

EMERSON MFG. CO.



AWRENCE, = = = MASS.^F

The John McDougall Caledonian Iron Works, Limited MONTREAL, P.Q.



Worthington Turbine Fire Pump, working pressure 160 lbs.

BOILERS:

Return Tubular "McDougall"
Water Tube, Lancashire, etc.

TANKS:

Water Tanks, Penstocks, Steel
Riveted Pipe, etc.

MACHINERY:

Complete Power Plants designed and installed.

Sole Manufacturers in Canada for Worthington Turbine Pumps.
'Doble' Impulse Water Wheels and New York Filter Co.'s Pressure Filter.

DEATH OF MR. RICHARD M. PORRITT.

We learn with regret of the death of Mr. Richard M. Porritt, which took place on the 15th ult., at Stubbins, near Manchester, England, in the 67th year of his age. Mr. Porritt entered the woolen manufacturing business carried on at Stubbins Vale Mills by his father and uncle. He was made a partner in 1865, and since 1880 was the principal partner. Under his direction the business was greatly extended, the reputation of Porritt Bros. and Austin, manufacturers of felts, woollens, etc., being world-wide. The late Mr. Porritt was greatly beloved by the employees, in whose welfare he took keen interest. He also took an active part in the administration of local affairs, and was extremely fond of travelling, having visited Canada, the United States, Egypt, Algeria, and practically every European country. He leaves a widow, one son (Mr. Austin Townsend Porritt) and two daughters.



THE FIELD FOR KRAFT BROWN.

Editor, "Pulp and Paper Magazine:"

Sir,—I read with interest in your last issue the article about "Kraft Brown Paper." I know something about this process and saw the most modern mill of that kind a few years ago in Sweden. There is certainly a big field for the manufacture of that kind of paper in Canada, especially for export to England and possibly France and Belgium.

There are two other classes of pulp and paper, which are not made in United States or Canada to my knowledge, at least one of them. I enclose a sample of brown wrapping paper that I got as wrapper for a magazine from abroad. The wood, after it is barked, is steamed for some hours in a vessel, whereby it takes a brown color. Then the wood is ground as common ground wood. The result is a very long and strong fibre, and after it is screened, it is worked some in a common beater, size and alum

added, and then it is worked direct in the paper machine. There are a many mills in Sweden, Norway and Finland making this brown wrapping paper. By calendering and water finishing the paper increases in strength, smoothness and appearance. Some mills use it into toilet papers. A great deal of this paper is exported to England. Finland sends large quantities to Russia. Other mills make this brown paper into boards of a very strong and good quality.

The other sample is made by the sulphate (not sulphite) process which is a modification of the soda process. Spruce slabs and jack pine could be used to good advantage. The pulp is very strong and flexible, has a good color, unbleached, better than by the soda process, and the fibre bleaches easy and has some qualities not possessed by fibre made by the sulphite process. No sulphate pulp is made in the United States, and I hardly think in Canada. But United States imports considerable quantities of this pulp from Sweden. The Champion Coated Paper Co., in Hamilton, take large quantities from Sweden and produce the paper they want.

Yours truly,

Oct. 1.

H. O.



BRITISH PAPER TRADE WITH CANADA.

The following are the values in sterling money of the exports of paper from Great Britain to Canada for the months ending August 1905 and 1906.

	8 months to 1905.	8 months to 1906.
Writing paper, etc.....	\$44,703	\$44,703
Other paper	16,879	16,879
Stationery other than paper	39,136	39,136



—The English China Clay Co. has been incorporated under New York law to sell in the United States the product of several mines in Cornwall, England. Its offices will be at 25 West Broadway, New York City.

BECKER & CO.

F. E. R. BECKER - - - LONDON

GEORG v.d. BUSCHE, Jr. - - HAMBURG

4 CANNON ST., LONDON, E.C.

MANCHESTER OFFICE - - ROYAL EXCHANGE

The Largest Importers of

Wood Pulp

BRO TRAESLIBERI, Christiania.
The Finest Mechanical Produced.

AKERS TRAESLIBERI, Fredrikshald.
Hot Ground P.A. Brand.

BORKA AKTIEBOLAG.
Dry Mechanical Lion Brand.

ATIE BOLAGET IGGESUNDS
BRUK, Iggesund.

FEEN TRAESLIBERI, Christiania.

FMFOS TRAESLIBERI, Christiania.

VFOS BRUG, Krageroe.

CICOUTIMI PULP CO.
Canadian Hot Ground Spruce.

NVA SCOTIA WOOD PULP CO.

ELGO PULP CO., Schwenigen.

SKOTSELV CELLULOSEFABRIK,
Skotselven.

Easy Bleaching Sulphite.
VESTFOS CELLULOSEFABRIK,
Christiania.

Easy Bleaching Sulphite. (Scotland excepted.)
SKIEN CELLULOSEFABRIK, Skien.
Strong Sulphite Pulp.

KONIGSBERGER ZELLSTOFF-
FABRIKEN.

German Mitscherlich Pulp.

FORSMARK BRUK.

Easy Bleaching Soda Pulp.

VEREINIGTE STROHSTOFF FAB-
RIKEN.

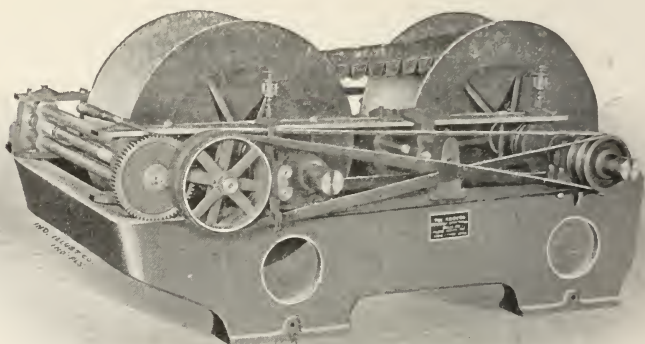
Bleached Straw Pulp.

AKTIEBOLAGET, KAUKAS FABRIK,
Helsingfors, Finland.

SKONVIK AKTIE BOLAG, Skonvik.

WAIT!

Don't Turn Another Page Here It Is



The Much Talked of "THE REEVES" Variable Speed Transmission

The one practical device for regulating the speed of the paper machine.

It everlastingly gets away from the nerve racking old true cone, in whatever form it seeks to disguise itself.

There is absolutely no shifting of belt.

It is made in sizes to drive anything from a winder to a 140" Fourdrinier.

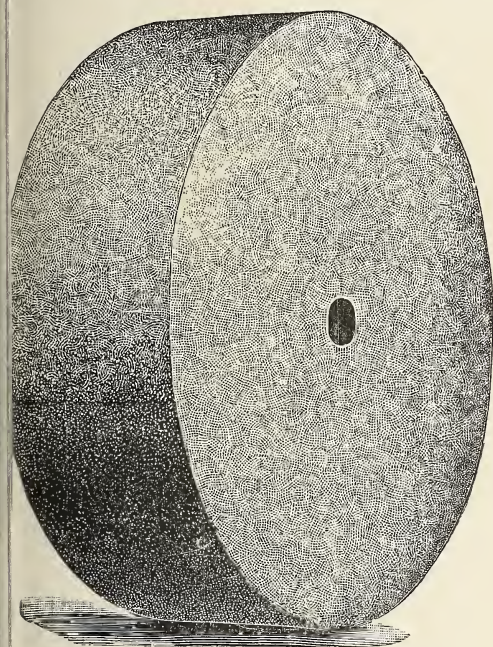
Any speed within its extreme range of variation may be instantly secured and the changes effected without breaking or stopping the paper sheet.

Recommended and adopted by the largest and most progressive paper mills in America and Europe.

Send for Paper Machinery Catalogue To-day

REEVES PULLEY COMPANY,
COLUMBUS, INDIANA, U.S.A.

German Grindstones



Wood
Grindstones,
Wood Pulp
Refiner
Stones,
Edge-Runners
French
Millstones

Artificial Emery and Quarzstones

Stones of all kinds used in Wood Pulp and Paper
Manufactories.

Six Own Quarries at
Wehlen-Zeichen and Langenhenndorf (Saxony)
Neuland and Goldbach (Silesia) Hoffnung (Bohemia).

GEBRÜDER ISRAEL

PIRNA-ON-THE-ELBE (SAXONY)

The Moreau Pulpwood Barker



Capacity, 3 Cords per hour with 2 men and 6 horse power

It can be run the year round in dry, green or frozen wood.

The Real Machine which takes on 16 to 18 per cent discount of the wood and saves money.

WRITE TO-DAY FOR FURTHER PARTICULARS.

The Moreau Barking Machine Co., Ltd

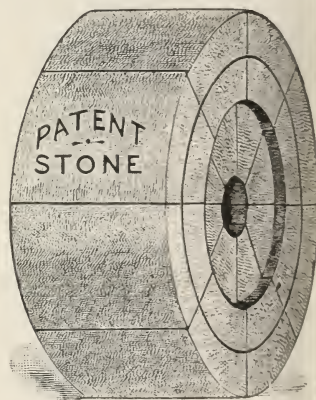
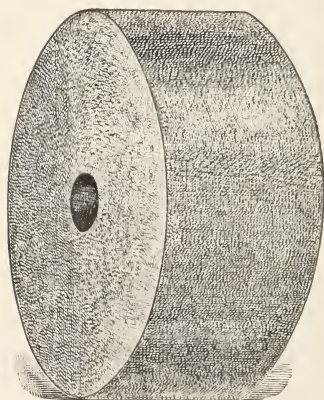
C. MANSEAU, Selling Agent for U.S. and Canada, Mitchell, Quebec
RELIABLE AGENTS WANTED.

PULP STONES

ENGLISH, GERMAN and SCANDINAVIAN

ALSO THE

PATENT UNIVERSAL



the construction of which gives to it advantages not found in the one piece stone.

Let us tell you about them

JEAN FREESE

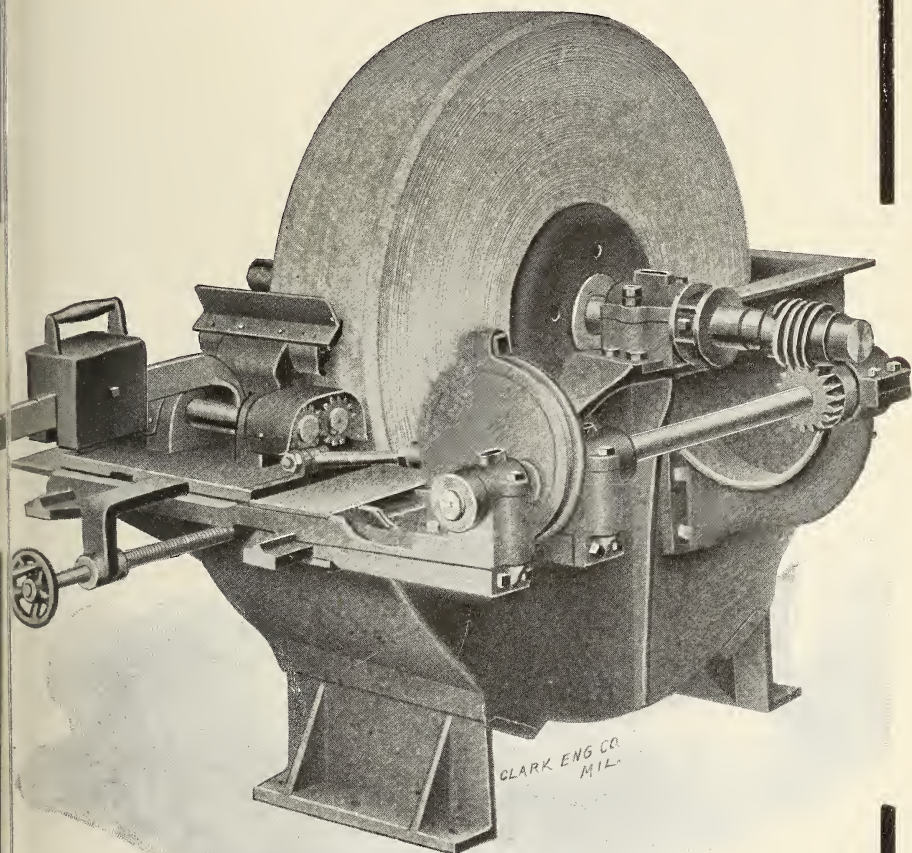
132 NASSAU ST., NEW YORK, U.S.A.

The British Columbia Government timber scaling department states that 34,000,000 feet of logs were scaled on the coast during August, and 26,000,000

feet in July. This being a high record up to that time. The total log scaled for the Province in August was 60,000,000 feet.

Valley Iron Works Co.,

Paper & Pulp Mill Machinery Specialists



AUTOMATIC BARKER KNIFE GRINDER.

This machine has a capacity of 150 perfectly ground knives per day, and does not draw the temper of the knife—therefore effects a saving in your knife account. It is the only machine of its kind on the market.

WRITE US FOR PRICES.

Valley Iron Works Co., Appleton, Wis.,

U. S. A.

Holyoke Steam Boiler Works,

INCORPORATED

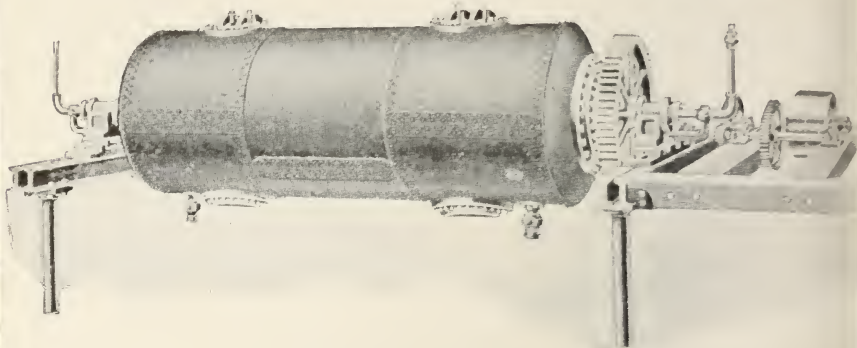
[HOLYOKE, MASS., U.S.A.]

T. H. SEARS, Mgr.

MANUFACTURERS OF

EXTENSION FURNACES, HIGH PRESSURE HORIZONTAL TUBULAR BOILERS, IMPROVED DIGESTERS, IMPROVED VERTICAL BOILERS.

Improved Rotary Bleach Boilers.



This cut illustrates our improved rotary bleach boiler the result of more than 30 years careful study and experience. The most complete of its kind in the world. Over 500 in use in Canada, United States and Mexico.

We are specialists in boilers and furnaces for pulp and paper mills. Let us know your requirements.

T. J. MARSHALL & CO.

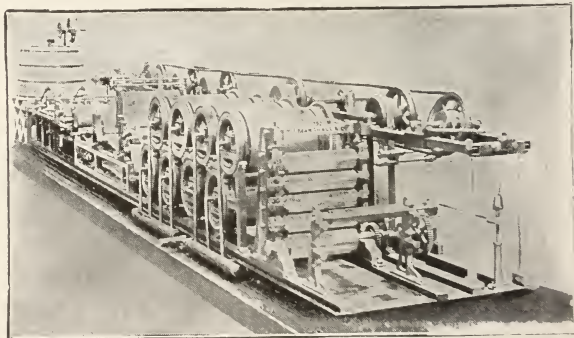
The OLDEST & LARGEST
MANUFACTURERS of

DANDY ROLLS IN THE WORLD

BANK NOTE MOULDS, DECKLE STRAPS, CUTTING MACHINES, ANIMAL SIZING MACHINES, PATENT DANDY ROLL CARRIAGES, PAPER TESTING MACHINES, PAPER SCALES, &c.

1792.

By Special Appointment to
H.M. Stationery Office
Telegraphic Address:
"Dandyrolls, Ltd. Co."



By Special Appointment to
H.M. India Office

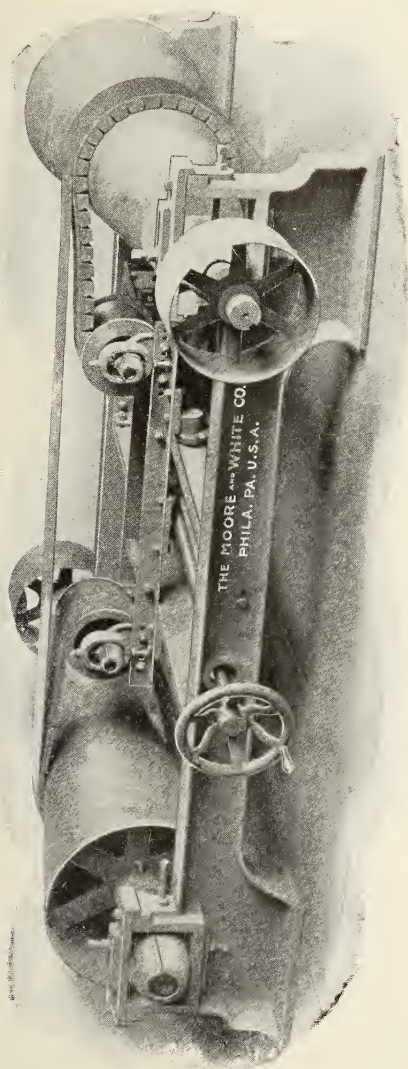
FRONT PERSPECTIVE

Manufacturers of the Smallest Paper-making Machine in the World

Specially constructed for Mill Testings before Making the bulk, the same results being obtained as from a wide Fourdrinier Machine. Also for Technical Instruction.

T. J. MARSHALL & CO., Stoke Newington, LONDON, CAMPBELL WORKS.

"Moore & White" SPEED CHANGE for Paper Machines.



WIDE BELT.

PERFECT CONTACT.

ANY DESIRED RATIO OF CHANGE.

Absolutely No End Thrust or Tendency Sidewise of Transformers or Driving Belt.

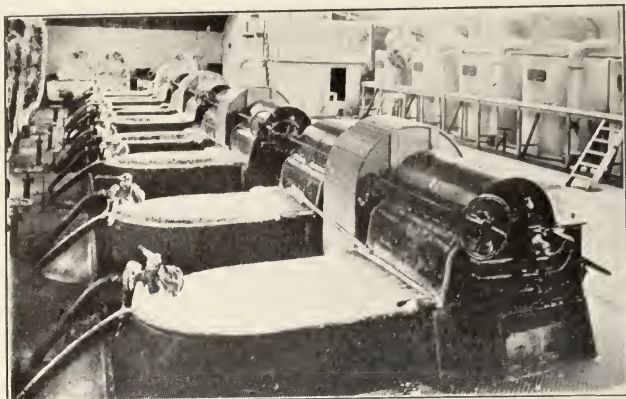
The Moore & White Co.

PHILADELPHIA, U. S. A.

BUILDERS OF PAPER MAKING
MACHINERY

Masson, Scott & Co., Limited

Paper-Makers' Engineers



SPECIALITIES

Patent Machinery
for Bleaching and
Beating.

Strainer Plates,
Closing Strainer
Plates.

Sole British
Agents for

Robert Dietrich's
Kneader for Pulp
ing Paper Stock

MASSON, SCOTT & CO., LIMITED
CORONATION WHARF, FULHAM,
LONDON, S.W., **ENG LAN**

500 Twelve-Foot Logs per Hour

Cut into two-foot lengths ready for the barker. That is the ordinary capacity of
**Perron, Gagnon & Co.'s Automatic Pulp Wood
Sawing Machine.**

(Patented in United States and Canada, 1900 and 1906.)

One man alone operating the machine can cut 5,000 logs every ten hours without much
exertion. Logs automatically conveyed to the saws, and from the saws to the barker.
A machine installed in the large No. 2 mill of the Chicoutimi Pulp Co. and operating
10 hours per day

**Supplies Wood to Twenty Grinders
Working 24 Consecutive Hours.**

On account of its many advantages, and the fact that it requires only one man
operate, our machine has replaced expensive systems requiring the services of 18
20 men.

**ECONOMISE IN YOUR WAGES BILLS, INCREASE
YOUR PRODUCTION, AND SWELL YOUR PROFITS.**

This can only be done in the pulp mill by the use of our up-to-date sawing system.
Write to-day for catalogue and particulars.

PERRON, GAGNON & CO.
Chicoutimi, Quebec,
Patentees and Sole Manufacturers.



BELTING.

Contractors to

The Admiralty, War Office, India Office, and the leading Railway Companies of Great Britain.



BELTING.

**IRWELL AND EASTERN
RUBBER CO., Limited,**
Manufacturers of

"LANCO"

BALATA BELTING

This is a genuine article, and is GUARANTEED to be equal in every respect to the best **Balata Belting** at present manufactured.

Nothing better in this class of Belting can be had, and it is specially recommended for heavy and difficult drives. Everything in connection with this Belting is of the very best quality.

IT STRETCHES LESS THAN ANY OTHER BALATA BELTING.
and is without doubt the most reliable of its kind.

Samples and Quotations may be had from our Works,

ORDSALL LANE, SALFORD, MANCHESTER.

Telegrams—"PARA, MANCHESTER." A B C Code—5th Edition.

DILLON MACHINE

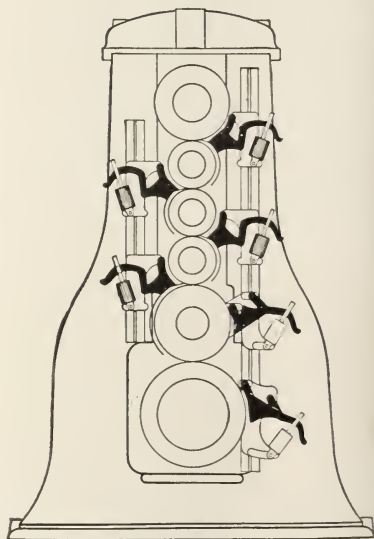
COMPANY

BUILDERS OF

PAPER MILL MACHINERY

Beating and Washing Engines,
No. 1 and No. 2 Refining Engines,
Stuff Pumps, Single, Double and
Triple, all sizes, fitted with the
Dillon Patent Valve Seating,
Wet Machines, Stuff Chests,
Horizontal and Vertical, all sizes,
Single and Double Paper Cutters,
Backstands, Dillon Patent Calen-
der Doctors and Feeds, Jordan
Filling, Roll Bars, Bed Plates
and Cutter Knives.

Our Patent Calender Doctors and Feeds
are made in Canada.



DILLON DOCTORS
AND
FEEDS

DILLON MACHINE CO.
LAWRENCE MASS.

LAWRENCE, MASS., U.S.A.

MIRAMICHI PULP & PAPER CO., Limited.

CHATHAM, N. B.

Manufacturers of High Grade Easy Bleaching

Sulphite Pulp

Suitable for Writing and Book Papers

ESTABLISHED 1878

George E. Hanson

Expert Manufacturer of High-Class

FELTS

FOR SULPHITE AND GROUND WOOD PULP MILLS

Only best of stock is used in making these goods. I am supplying some of the best Mills in Canada, among them being, The E. B. Eddy Co., Hull; J. R. Booth, Ottawa; James Maclaren Co., Buckingham, Que; Nova Scotia Pulp Co., N.S.; Lake Megantic Pulp Co., Lake Megantic, Que.; A. J. Morrill, Nicolet Falls, and others.

A trial order would be appreciated.

HULL WOOLEN MILLS, HULL, P.Q.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions

Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,

Ejector Vacuum Pumps — Bertrams Limited — Patent.

Wahlstrom's Patent Refiner— Canadian Patent 89 368.

DR. C. WURSTER'S ^{Patented} Pulping Machines & Kneaders

OVER 200 SOLD

LARGE PATTERN—Four Sizes.

PULPING-UP 3, 6 and 9 and 12 tons of Dry Papers or Pulp in
24 hours.

POWER—5 h.p., 8 h.p., 12 h.p. and 15 h.p.

SMALLER PATTERN—For Sorted Papers only.

PULPING-UP 2 to 3 tons of Dry Paper in 24 hours. 2 to 4 h.p.
Built in Iron.

For Better Quality Papers, Trough and Propellers made of Brass

Special Machines for Unsorted Paper.

These Machines do not Grind, Cut-up, or Wet the Fibres, and as the State of Beating and Refining is Unaltered, neither Color nor Sizing being Affected, and Impurities not touched, "BROKE" can be Re-used for the Same Quality of Paper again.

FOR PARTICULARS APPLY TO

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.
ENGLAND.

PAPER STOCK MARKET REPORT.

Montreal, Oct. 11, 1906.

The paper stock market has been quiet during the past month. Waste paper stock is in better demand, but prices continue low. Cotton rags are not called for. The better qualities of cotton cuttings are still in fair demand at former prices.

Manilla rope after a drop of \$6 to \$8 a ton is again moving fairly well.

Bagging is lower in price and difficult to sell.

Roofing stock is a little off. Mills have stocked up pretty well with foreign cuttings before the close of navigation, and domestic stocks are beginning to cumulate in dealers hands:—

10. 1 white shirt cuttings.	\$5.25 to \$5.75
ght print cuttings	4.00 to 4.50
ableached cuttings	4.50 to 5.00
hite shoe clips	4.50 to 5.00
colored shoe clips	2.75 to 3.25
omestic white cottons...	2.00 to 2.25
ues and thirds	1.40 to 1.50
oofing stock .....	.75 to 1.00
aste papers .....	.35 to .40
anila rope	4.25 to 4.50
gging .....	.90 to 1.10

Wanted.

Four boss for 12 grinder ground wood mill ; must be first class pulp maker and have good knowledge of machinery. Good wages for right man. Address, "M.T.H.," care Pulp and Paper Magazine.

Situation Wanted.

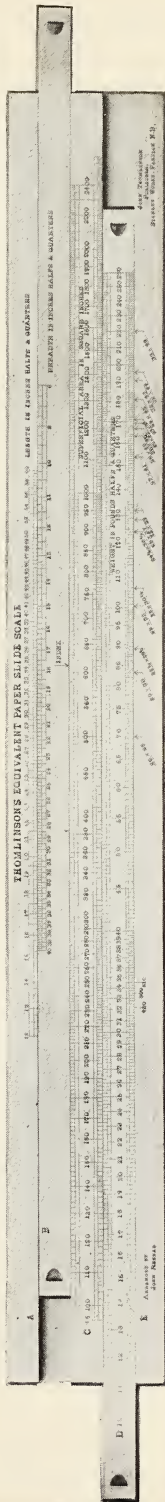
A French civil engineer and graduate in science, who has had three years' practice, two of which have been in the manufacture of wood pulp and paper, is open for an engagement with a Canadian paper or pulp mill. A modest salary will be asked to start. Good references. Address, B.C., c/o Pulp and Paper Magazine, 79-80 Confederation Life Building, Toronto, Canada.

FOR SALE

Two Second hand Jordan Engines. In good condition. Taken out to replace with larger. For particulars apply Kinleith Paper Co Ltd., St. Catharines, Ont.

YOU NEED IT

For calculating the relative weights of different sizes of paper and similar calculations employing "the rule of three."



Price in Waterproof Cardboard, \$3.50 each.
Price in Extra Finished Boxwood, \$15.00 each.

Write now for booklet.

RITCHIE & RAMSAY, Limited, - 84 WELLINGTON STREET WEST, TORONTO, CANADA.

able Address,—“Kaolin, Manchester.” A.B.C. Codes, 4th & 5th Editions

CHINA CLAY CO.

JOHN WILLIAMSON, Manager.

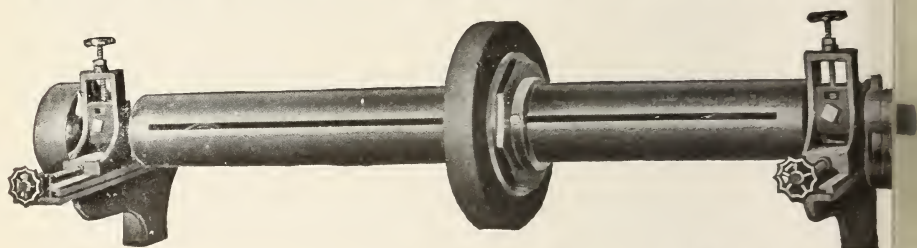
4 St. Annes's Square

MANCHESTER, ENG.

MINES—Ruddle, Bojea, Colchester, South Ninestones, Tronance, St. Auste,
Cornwall.

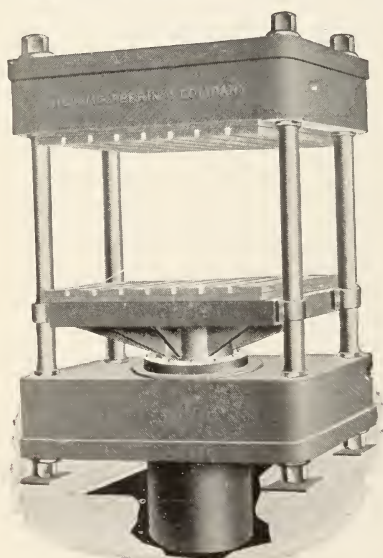
CONTRACTORS TO H.M. INDIAN GOVERNMENT

“The Roy Patent Calender Roll Grinder”



B. S. ROY & SON, - Worcester, Mass. U.S.A.

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders
Pumps, Heaters

F. H. DAVIS & CO.

161 Devonshire St.,
BOSTON, - - MASS.

J. D'Oyley Mears & Co.,

PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
Cardrobe Chambers, Queen Victoria Street,
London, E. C.

THE RIORDON PAPER MILLS, Limited.

Merritton and Hawkesbury, Ont.
Merritton Mill—Newspaper, Hanging
Paper, Wrapping Paper and Building
Paper and Sulphite Pulp.
Hawkesbury Mill—Sulphite Pulp.

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, - - - - 82 Beaver Street, New York.

Norwood Engineering Company,

FLORENCE, MASS., U.S.A.

Builders of the highest grade of Paper
Finishing Machinery, Rag Dusters, Belt
Power Elevators, etc. Contractors for Fil-
ter Plants of any size, Industrial or Munici-
pal, Gravity or Pressure system.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway)	..	Kirkegaden No. 20.
GOTHENBURG (Sweden)	..	Lilla Kyrkogatan No. 20.
MANCHESTER	..	Guardian Buildings (opposite Exchange).
LONDON	.. .. .	77a Queen Victoria Street, E.C.
PARIS	.. .. .	Rue de Londres No. 29.
ANGOULEME (France)	..	43 Rue Louis Desbrandes.
LYONS	.. .. .	54 Cours Gambetta.
MILAN	.. .. .	24 Via Solferino
TOLOSA (Spain)	.. .. .	18 Calle San Francisco.
NEW YORK	.. .. .	99 Nassau Street.
ST. PETERSBURG	.. ..	Little Podjascheskaja House, 4. Qu. 16.

Telegraphic Address:

“WERTHEIMO, HAMBURG.”

**BARKER,
CHIPPER,
PAPER-CUTTER**

MACHINE KNIVES
Of Every Description.

The Peter Hay Knife Co., Limited, Galt, Ont.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.

DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.



REGISTERED.

JOHN KNIGHT & CO.,

CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents for the ... **L.G.V., W.F.,**  and other Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

1906
Edition

Price 10/6 net, or post free in United Kingdom 11/-; Abroad 11/6. Demy 8vo., cloth bound, 6,050pp.

1906
Edition

The Paper-Makers' Directory of all Nations.

Annuaire de la Papeterie de Toutes les Nations.

Internationales Adress-Buch Sammtlicher Papier-Fabrikanten der Welt.

Alphabetically arranged throughout. Printed in clear type.

CONTENTS INCLUDE:

PRINCIPAL PAPER, PULP and BOARD MILLS, &c., OF THE WORLD (5,000) arranged according to countries (40), giving Names, Addresses, Makes of Paper, Number and Width of Machines, Weekly Turn Out, Power Used, Telegraphic Addresses, &c., &c.

FIRMS CLASSIFIED according to PRINCIPAL PRODUCTIONS.

BRITISH PAPER AGENTS and MILL REPRESENTATIVES with Addresses and Firms Represented.

WASTE PAPER and RAG MERCHANTS and PAPER STOCK DEALERS (British).

CHINA CLAY DEALERS (British).

EXPORT MERCHANTS AND SHIPPERS OF PAPER.

WHOLESALE STATIONERS AND PAPER MERCHANTS.

ENAMELLERS, VARNISHERS, SURFACERS and STAINERS OF PAPER, &c. &c. &c.

CARDBOARD AND PAPER BOX MANUFACTURERS.

TO BE OBTAINED FROM

DEAN & SON, LIMITED, 160a, Fleet Street, London, E. C.

STUFF PUMP

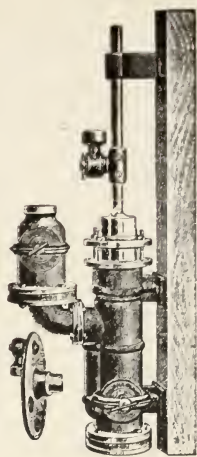
This pump is made in three sizes, 5", 6" and 8".

The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by



T. McOUAT & SON, Lachute, Que.

MAPLE LEAF
STITCHED COTTON DUCK
BELTING
DOMINION BELTING CO. LTD
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of

GRADED RAGS, PAPER STOCK,
ROPE BAGGING, ETC.

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction Board.
Mills at Sault au Recollet, P.Q.

ATTERBURY BROTHERS, Incorporated.
Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

PERFORATED SHEET METALS
IN BRASS, COPPER, STEEL, Etc.

All sizes of perforations and thickness of metals for all purposes

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

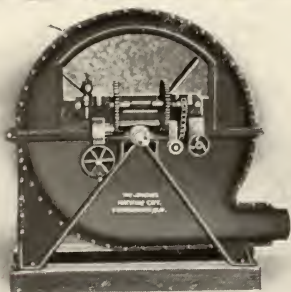
Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.

BELOIT IRON WORKS

BELOIT, WIS., U. S. A.



PULPWOOD BARKERS



Correctly Designed; strong and durably built; easy running and of large capacity.

Built in two sizes, 52 inches and 60 inches.

Bulletin 500, containing particulars sent on request.

SALES OFFICES:
TORONTO
ROSSLAND
HALIFAX
VANCOUVER

THE JENCKES MACHINE Co.,

EXECUTIVE OFFICE

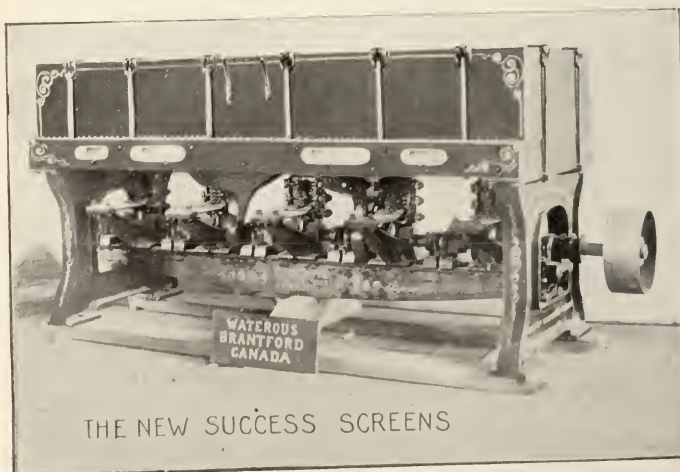
LIMITED,

40 Lansdowne St. Sherbrooke, Que.

PLANTS: Sherbrooke, Que.
St. Catharines, Ont.

We manufacture a full line of

PULP MILL MACHINERY



We repair and
make over
Cylinder
Moulds.

Write for Special
Catalogs.

The Waterous Engine Works Co., Limited

BRANTFORD

CANADA

CHALK WHITE" COATED BOOK PAPER.

the best and whitest coated paper sold. — All regular sizes and weights in stock.

The Cover of this magazine is our Art Litho Cover, stocked in four sizes, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Windsor Mills, Que. = Montreal. = Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

S. YOUNG, = = Sole Agent for Canada.

14 Hospital Street, Montreal.

F

"TURBINE WATER WHEELS"

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from
S. MORGAN SMITH Co.,
YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company,	14,000 h.p.
Montreal Cotton Company,	7,000 h.p.
Sturgeon Falls Pulp Co.....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

JOSEPH H. WALLACE, C.E.

M. AM. SOC. C. E. M. CAN. SOC. C. E.

INDUSTRIAL ENGINEER,

TEMPLE COURT BUILDING, NEW YORK

CABLE ADDRESS "TRIPLEX," N.Y.

MANUFACTURING PLANTS AND POWER DEVELOPMENTS
REPORTS ON INDUSTRIAL PROPERTIES, APPRAISALS, ETC.

A. V. JAASTAD, M.E., CONSULTING STEAM ENGINEER.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland, = = Montral

PULP AND PAPER MAGAZINE

OF CANADA

VOL. 4. TORONTO, NOVEMBER, 1906. NO. 11.

FEATURES OF THIS NUMBER

Origin of Kraft Paper

Hint to Paper Manufacturers

Viscose for Sizing Paper

Bleaching Colored Fibres

Laurentide Paper Co.

A New Sulphite Process

Recent Canadian Patents

Established 1837

Incorporated 1867

RICE, BARTON & FALES

MACHINE & IRON CO.

CHARLES S. BARTON, Prest. & Treas.
GEORGE S. BARTON, Secretary.

WORCESTER, MASS.

BUILDERS OF

Modern Fast Running and Heavy Four-
drinier and Cylinder Machines for Making
Paper, and Drying Pulp.

Double Drum Vertical Winders and Re-Winders.

Upright and Revolving Reels.

Large and Heavy Wet Machines.

Revolving Cutters and Layboys.

Hill Patent Diagonal Cutters, which can be equipped with
Slitting Arrangement, and Reeling Off Bars.

Chilled Iron Calender Rolls.

Screens and Screen Plates.

Stuff, Suction and Fan Pumps.

Patent Top and Double Edged Slitters.

Pneumatic Re-Winders for Small Rolls.

Additions and Changes made to Old Paper Machines
Greatly Increasing Speed and Capacity.

Makers of the Moore Patent Horizontal Revolving
Screen for Ground, Soda, and Sulphite Pulp.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

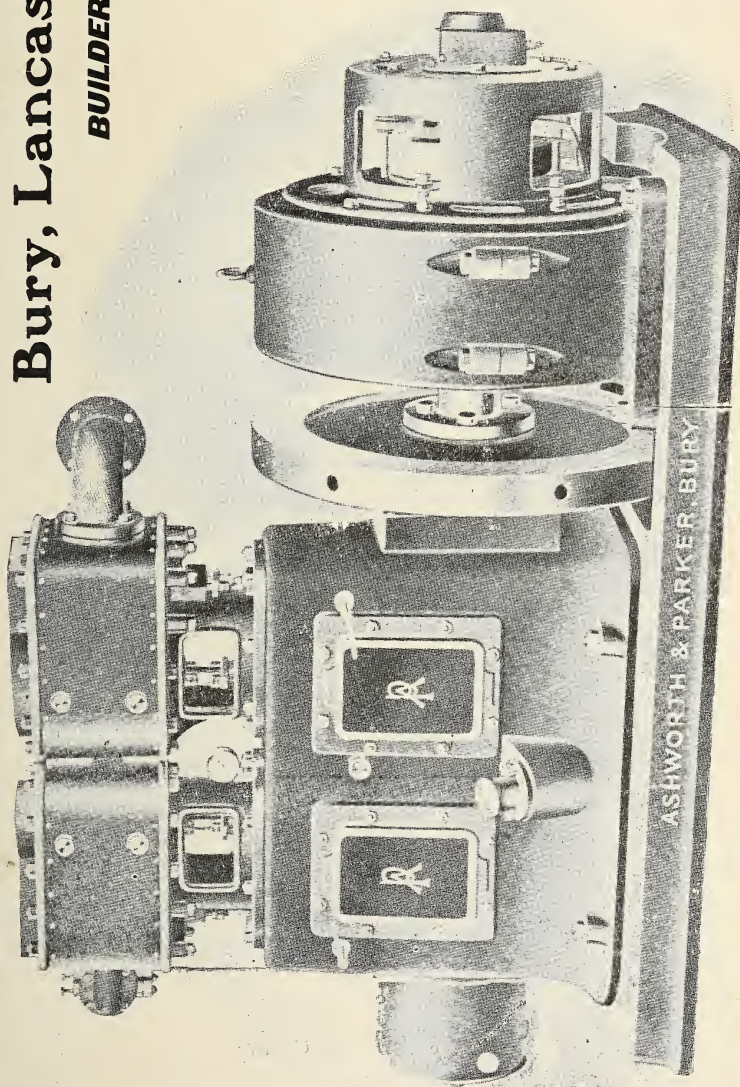
ESTIMATES ON APPLICATION.

Ashworth & Parker

Bury, Lancashire, Eng.

BUILDERS OF ...

**Forced
Lubricating
Engines,
Special Types
For Paper
Machine
Driving,
Electric
Generating
and
Centrifugal
Pumping.**



BERTRAMS, LIMITED

Papermakers'

Engineers

St. Katherine's Works,

SCIENNES, EDINBURGH.

The Newest and most Up-to-date Machinery for Papermakers,
embracing British, American and Continental Improvements.

C. H. JOHNSON & SONS, Ltd.

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Rollers

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

Agents for Canada : C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL

INDEX TO ADVERTISEMENTS.

North & Parker	5	Hough, R.	60
Boury Bros.	56	International Pulp Co.	9
er & Co. ....e.o.m.		Irwell and Eastern Rubber Co.	47
et Iron Works.	57	Israel, Gebruder	41
ey & Jackson	4	Jenckes Machine Co., Limited	12 & 58
am's, Limited	6	Johnson & Sons, Limited, C. H.	6
Black-Clawson Co., The	7	Klipstein & Co., A.	11
rt & Co., F.	10	Kimball, Herbert S.	9
ermer, Mond & Co., Limited	60	Knight & Co., John.	55
ada Paper Co.	59	Lea & Coffin, and H. S. Ferguson	9
adian Rubber Co. of Montreal.	8	Little, Arthur D.	9
ae, Gottheil & Overton.	9	Marshall, T. J. & Co.	44
ha Clay Co.	52	Masson, Scott & Co., Limited	46
htie, J.	60	McDougall Caledonian Iron Works, The	
htie, Limited, George	3	John	37
de & Main	8	McOuat & Son, T.	56
as & Co., F. H.	52	Mears, D'Oyley & Co.	53
ew, J. A.	9	Miramichi Pulp & Paper Co.	49
in Machine Co.	48	Moreau Barking Machine Co.	24
union Belting Co.	56	Moore & White Co.	45
an & Brownell.	8	Norwood Engineering Co.	53
erson Mfg. Co.	39	Paton, Thomas L.	3
avanks & Moody	9	Perrin & Co., Ltd., Wm. R.	52
iser, Julius	10	Perron, Gagnon & Co.	46
rie, Jean	3	Porritt & Sons, Joseph.	10
rie, Jean (Pulp Stones)	42	Porritt & Sons, Limited, Samuel	60
ring, The B., Wire Co., Limited.	56	Porritt Bror. & Austin.	6
son, Geo. E.	49	Pringle & Son, T.	9
ay, George F.	9	Pulp & Paper Trading Co., The.	55
axsworth & Sons Co., Limited, Alfred.	12	Pusey & Jones Co.	50
Knife Co., Limited, Peter	55	Quebec & Lake St. John Ry.	8
oke Steam Boiler Works.	44	Reeves Pulley Co.	40
ice, J. H., & Sons Co.	10	Rice, Barton & Fales.	2

(Continued on Page 8.)

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.

Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

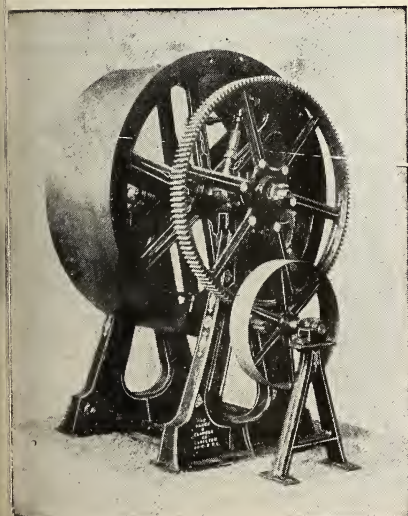
from new patterns and designs embodying the latest improvements.

Foot-power Perforators.

3 Roller Ink Mills.

Evaporating and Drying
Machinery.

We Solicit Correspondence.



Honest
Value



Com-
plete
Satis-
faction

MARK OF QUALITY.

DECKLE STRAPS

We are supplying some of the largest and most discriminating users of Deckles in Canada with maximum success.

Read the following letter, just received in reply to a recent enquiry from our Deckle Strap department:—

"Your enquiry regarding deckle straps to hand, and in reply must say that I have used deckle straps made by the best firms in Scotland and in the United States, and also that I have used yours during the past twenty years, and I have always found your deckle straps equal to, if not better than, any of the above makes.

During the past two years your deckles have proven to be **the finest I have ever used.**

I have not experienced any trouble with them.

JAS. D. FINDLAY, Manager,
Joliette Paper Mills, Joliette, Que."

THE CANADIAN RUBBER CO. OF MONTREAL, LIMITED.

HALIFAX 155 Granville St.
MONTREAL.. Imperial Bank Building,
St. James St.

TORONTO Corner Front & Yonge Sts.

And at

WINNIPEG, CALGARY, REGINA,
VANCOUVER, VICTORIA.

INDEX TO ADVERTISEMENTS

(Continued from page 7.)

Riordon Paper Mills, Ltd.....
Ritchie & Ramsay.....
Roy & Son, B. S.....
Smith Co., S. Morgan.....
Tippett, A. P. & Co.....
Union Screen Plate Co.....
Union Sulphur Co., The.....
Vogel, C. H.....
Valley Iron Works Co.....
Walker, J. R. & Co.....
Wallace, Jos.....
Waterous Engine Works Co., Ltd.....
Wertheim & Co., A.....
Whittaker, Richard.....
Wilson, Paterson & Co.....
Winn & Holland.....
Wurster, Dr. C.....
Young, J. S.....

DEAN & MAIN, Mill Engineer and Architect, Exchange Building, 53 State Street BOSTON, Mass.

Examinations, Designs and Supervision
Construction of Pulp and Paper Mills. Examina-
tions and Reports on Projects and Water Power
Developments.

CHARLES E. EATON, JAMES P. BROWNELL,
M. Am. Soc., M. E. C.

EATON & BROWNELL,
Consulting Engineers and Architects
Paper, Pulp and Fiber Mills, Water, Steam and
Electric Power Development, Examination of
Properties, Consultation Reports.
SMITH BLDG. WATERTOWN, N. Y.



This Railway runs through Two Hundred
Miles of the Finest Spruce Forests of
America, through a country abounding in
Water Powers suitable for Pulp and
Paper Mills and other industries, and
easy access to the Steamship Docks of
Quebec.

ALEX. HARDY, J. G. SCOTT,
G.F. & P.A. General Manager
QUEBEC, P.Q.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT AND ENGINEER
 SPECIALIST IN
 Pulp and Paper making. F

T. PRINGLE & SON

Specialities:—Pulp Paper and Fibre Mills,
 Hydraulic Developments and Electrical
 Transmissions
 409, 410, 411, 412 Coristine Bldg.,
 MONTREAL. F

HERBERT S. KIMBALL

Chemical Engineer and Mill Architect
 101 Tremont St., Boston, Mass.
 Designs, Examinations and Reports in connection with Sulphite and Soda Fibre Mills; and
 writes Burners for the Sulphite Process. F

C. H. VOGEL

A. M. Can. Soc. C.E. **ENGINEER**
 OTTAWA, CAN.
WATER POWER
 Paper, Pulp and Sulphite Fibre Mills

GEORGE F. HARDY,

M. AM. SOC., M.E.
 M. CAN. SOC. C.E.

Consulting Engineer.

Paper, Pulp and Fibre Mills, Examination of
 Mill Properties, Water Power Developments.
 Mutual Reserve Building, - 309 Broadway,
 NEW YORK.

LEA & COFFIN, and H. S. FERGUSON, **ENGINEERS.**

Pulp, Paper and Chemical Fibre Mills.
 Water Power Development and Trans-
 mission. Steam Power Plants.
 CORISTINE BUILDING, MONTREAL.

"Asbestine Pulp" Filler

Superior to any Clay.
 Lowest price on application.
INTERNATIONAL PULP CO.
 New York City, U.S.A.

A. S. FAIRBANKS, Assoc. Mem. Can. Soc. C. E.,
 Assoc. Am. Inst. E.E.

H. A. MOODY, B.S., M.E.,
 Assoc. Mem. Am. Soc. M.E.

FAIRBANKS & MOODY

Industrial Engineers
Paper and Pulp Mills
Hydraulic Development
 150 Nassau St., New York.

J. A. DeCEW, B.A. Sc.

Chemical Engineer.

SUN LIFE BLDG., MONTREAL

Specialist in Soda Fiber and Paper Mill Chemistry.

Patented Processes for Digesting, Causticizing, Evaporation, Recovery.

Consultation.

Advice.

Reports.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

JULIUS FISCHER, Maschinenfabrik

gegr. 1838. Nordhausen am Harz ca. 200 Arbeiter.

supplies as a long years and only specialty all machinery and complete installations for making surface-coloured (stained), coated, printed papers, Chromo, Art, Baryta Papers. For the preparation of gummed and marble papers. Wall paper printing and all auxiliary machinery, of the latest designs and modern construction.

First class references from all parts of the World

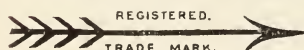
JOSEPH PORRITT & SONS

HELMSHORE NEAR MANCHESTER

FELTS

and JACKETS FOR PULP and PAPER MILLS

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes



Agents for the States and Canada,

F. BREDT & CO., - 240 Water Street, NEW YORK

Established 1864

Incorporated 1885

J. H. HORNE & SONS CO.,

LAWRENCE MASS.

MANUFACTURERS OF HIGH-GRADE

PAPER MILL MACHINERY

Beating and Washing Engines

"Jordan" Engines

"Horne" Improved Patent Engines

"Cloudman" Cylinder Washers

FOURDRINIER, CYLINDER & WET MACHINES

"Horne" Friction Cutters

Fan Pumps

Rag Knives

Cone Pulley Cutters

Stuff Pumps

Roll Bars

"Horne" Calenders

Calender Rolls

Bed Plates, Etc.

ORDERS FILLED ON RECEIPT

GET OUR CATALOGUE

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal
23 Scott St., Toronto

Sulphate Alumina

China Clay & Bleaching Powder
Auramine—News Blue
All Colors for Paper

Richard Whittaker

VICTORIA GUM AND STARCH WORKS
ARDWICK, MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y



127 BOARD OF TRADE BLDG., MONTREAL.

Agents for the United Alkali Co. of England

OFFER TO THE TRADE :

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.



VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; they do not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leather. Can be used under any pressure, the higher the better their wearing qualities will show.

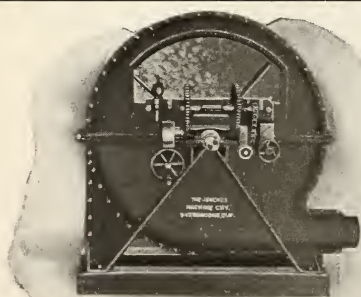
Can be furnished for any purpose at short notice.

Alfred Hawksworth & Sons Co., Limited

Mill Engineers and General Furnishers

551 St. James Street, - Montreal

PULPWOOD BARKERS



Correctly Designed; strong and durably built; easy running and of large capacity.

Built in two sizes, 52 inches and 60 inches.

Bulletin 500, containing particulars sent on request.

SALE OFFICES:
TORONTO
ROSSLAND
HALIFAX
VANCOUVER

THE JENCKES MACHINE Co.,
EXECUTIVE OFFICE LIMITED,

40 Lansdowne St. Sherbrooke, Que.

PLANTS: Sherbrooke, Que.
St. Catharines, Ont.

THE PULP AND PAPER MAGAZINE OF CANADA

C 4.—No. 11.

TORONTO, NOVEMBER, 1906.

{ \$1 A YEAR.
SINGLE COPY 10c

Pulp and Paper Magazine

Monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

SCRIPTIONS: Canada, British Empire and the United States, \$1 a year; to Foreign Countries, 5s. a year.

Pulp and Paper Magazine is published on the Tuesday of each month. Changes of advertisement should be in the publisher's hands not later than the 15th of the month, and, where proofs are required, they should be sent by mail, not by post.

E. B. BIGGAR,
PUBLISHER

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

KRAFT BROWN PAPER.

Representative of the "Pulp and Paper Magazine" had an interesting interview this month with John Forman, of Montreal, on the subject of Kraft brown paper. Mr. Forman, who is one of the leading exporters in the exportation of Canadian pulp and paper, as well as of Canadian pulpwood, who was the original projecter of the great power development at Grande Pointe, has not lost his interest in the subject, though he has now other large business concerns on hand. Mr. Forman was quick to perceive the special qualities of Kraft brown, and to note the advantages it possesses over the wrapping papers commonly used in the Canadian market. Mr. Forman agrees with the "Pulp and Paper Magazine"

that Swedish Kraft brown, though costing more per lb., is intrinsically cheaper than our common wrapping papers, because of its extreme lightness and greater durability. Many people do not realize—what ought to be self-evident—that if Kraft brown yields three times the number of sheets of a strength equal to or greater than one sheet of another kind it is really the cheapest, though the price per pound of the Kraft brown may be greater. Mr. Forman has demonstrated this in his own business, and finds it profitable to buy the Swedish paper after paying the duty and the importer's profit.

The best of the English-made Kraft brown is made from the pulp of that brand imported from Sweden, from which it follows that the British paper maker has not yet got the secret of making the genuine article; if indeed, any of them outside of Sweden have got the correct process of producing the pulp. It is certain, at all events, that of the several experiments made by United States mills in this special line not one has resulted in the production of a Kraft brown to be compared with the Swedish paper. There is no secret of this kind that can long be kept, however, and the Canadian mills who get into this trade will have a fortune within their reach, for a market can be found abroad as well as at home for all

that can be produced for many years to come.



IS THIS A FIXED POLICY?

If Sir William Van Horne's assertion be true—and most of Sir William's are—that it is the fixed policy of the United States paper manufacturers to obtain at least seventy-five per cent. of their supplies of pulpwood from Canada, in order to conserve their own limits as long as possible, then the time has very evidently arrived for something to be done of a definite nature. When it is considered that a cord of pulpwood exported from the Dominion yields only a sum total of about six dollars, including labor, transportation and Government dues; and that the same quantity of material converted into ground wood would be worth say thirteen dollars, or into sulphite pulp, twenty-one dollars; while a cord finished up into paper would be worth to the interests of this country from thirty-five to forty dollars; the wanton waste which is now going on will be the better realized.

Large tracts of spruce are being bought in Canada by Americans every year, and it is contended by some that they have not enough pulpwood in their own country, supposing its use were proceeded with without the help of the supply from Canada, to last more than four years. Why the Dominion should not reap the benefit of the kindness of nature to herself has never been explained. Great Britain alone imports pulp to the value of about \$13,000,000 yearly, but of this Canada supplies but little more than a million dollars' worth. Balancing all the possibilities in view, and remembering Canada's peculiarly great resources in

the way of raw material and with power, one can look forward to a time when, with proper conservation of the resources, Canada's pulp and paper trade will be second only in value to her other interests.



A HINT TO PAPER MANUFACTURERS.

Canadian manufacturers of paper should take a leaf out of the book of their English and German brethren. They are going in more and more to specializing. That is, they take up a certain line and work it out in its application to certain trades. Canadian manufacturers have a particularly good opportunity to choose some suitable grade of paper and to make it a special business to manufacture and supply that kind. For example, they might make waterproof paper, or paper adapted as a cover for butter, or for any other purpose that might be selected.



THE TORONTO CHAIR OF FORESTRY.

The resignation of Dr. Judson Clark, Provincial Forester for Ontario, draws attention to a fact which, in the press of closer, though not more important problems, is apt to be lost sight of. We refer to the question of a Chair of Forestry for Toronto University. It was generally believed that Dr. Clark would have been the first occupant of this important position as soon as it should be established; but the question seems to have become relegated to the background. It will be remembered that the Toronto University Commission recommended the

ment of a staff of at least three professors for instruction in forestry in cooperation with the Government's work in reforestation, and the preservation of the Crown's timber territory. Something is being done for Ontario forestry work by Prof. Zavitz, of Ontario Agricultural College at Guelph, but there is a larger scope for work which can be filled by one man in that capacity, however valuable his services. In taking up this subject we are not neglecting any brief for Dr. Clark, who is now going into a private lumber enterprise of probably much greater lucrativeness. It will be a pity, however, if the general shuffle any tangible delay should be allowed to take place in the institution of a forestry branch of Toronto University, and the appointment of a good, practical man to look after it.



Pulp & Paper Currency

Canada imported last year from Belgium 617 tons of paper, an increase of 48 tons compared with 1904. Belgian papers were shipped to Canada to the extent of 242 tons, a decrease of 76 tons.



Lynack & Co., Ltd., of London, who own extensive paper mills in Ireland, have decided to adopt the metric system. All the weights and measures will be metric, while for money calculations the pound sterling will be adopted as the unit, and worked down to four places of decimals. The company believes that the new system will enormously reduce the cost of calculations, and greatly facilitate dealings in its export trade, as they will put the metric equivalents in catalogues, and merely at the time translate them into Eng-

lish weights and measures for the benefit of English customers.



What is described as an excellent emery paper on board can be made by mixing the emery with the pulp, instead of merely coating the surface. Very fine homogeneous wood pulp is mixed with half its weight of well powdered emery, so as to distribute the latter throughout the pulp, which is then compressed into the requisite shape and thickness, care being taken to assure proper dessication.



The United States Forest Service is experimenting with various woods for pulp making. In the production of sulphite nearly four-fifths of the wood used is spruce. So far there seem to be more possibilities in balsam, to supplement spruce, than any other wood, yet the most interesting possibilities of the Forest Service investigations lie in the line of discovering other fibres that may have properties peculiarly adapted to special kinds of paper. An experiment station has been established, and a fully equipped model plant employed. The samples of wood used are collected by members of the Forest Service, in order that there may be no question as to their identification, and then treated as though in a regular pulp mill. Sulphite pulp is thus made from a variety of American woods. The fibres will be studied microscopically, and good sized samples of the pulp will be distributed among the paper manufacturers.



Austrian paper mills are said to be very busy, some of them able to continue until beyond the new year without taking fresh orders. Mill owners have

come to an agreement not to sell paper of 20 grammes the square metre for less than 45 kronen.

Mr. William Little, the timber expert, who has been prospecting in Newfoundland, says the evidence of prosperity is seen on all hands. Progress is being made in the construction of the "town" by the Harmsworths. At that point the falls in the river can be made to develop over 100,000 horse power, all of which is to be devoted to manufacturing purposes, the company having acquired over 2,000 square miles of pulpwood lands, which will stock their mills for a great many years. The Government's policy of prohibiting the export of pulpwood seems to have acted beneficially in this case. He believes the day is not distant when even the small spruce, of which Newfoundland possesses such large quantities, will be competed for by the lumberman as well as the pulp and paper maker, as is now the case in Norway, Sweden and elsewhere in Europe. This wood is of excellent quality, and is found to exactly suit the wants of the South American trade, to which country extensive shipments are now made at good prices.



Attention is drawn by the "Paper Dealer" to a neglected though possibly large field for paper selling in the larger cities. The small office occupants of the sky scrapers, in the aggregate, consume enormous amounts of paper, and usually of the good quality. Often times a mail order concern in a two-by-four room in one of the large office buildings will use more wrapping paper than a half a dozen grocery stores. In many of the large office buildings there are employed as many as five thousand

people, and this number represents consumption of a small city of that population. A good part of the production of the office buildings goes to large department stores in the vicinity.

The paper trade of any one of the large sky-scrappers would mean, thinks, a very comfortable living, and independence for the paper salesmen who wants to go in business for himself.

At the start it would be advisable to employ a paper salesman to secure desk room in the sky-scraper, and to solicit personally the business of each office. Personal visits should be supplemented by the use of blotters and advertising matter. As soon as the office occupants in the tall building realize that they can secure their paper, twine and light stationery in the building without going outside, they will show their appreciation with patronage.



—The paper-making industry in New Zealand has been established for a considerable number of years, but has failed to make much headway. This is due to the dearth of raw material of good quality available, and also the fact that the colony is regularly canvassed from time to time by the representatives of British and foreign mills, which are able, by means of abundant supplies of cheap raw material and cheap labor, to land a good article at a low price. Evidently, as in the case of the manufacture of woollen goods, there will be a demand for further protection of this industry against the inroads of British and foreign manufacturers. The local manufacturers complain that the colony is used as a "dumping ground" for British and foreign surplus stocks of a low grade, and that

ately printed bags are landed there, being paid on the material only not on the work.



Forestry and Pulpwood

The Miramichi Pulp and Paper Co. is very busy and has large gangs of men out in the woods.

Several lumber and pulpwood dealers appear before the Railway Commission, regarding the Grand Trunk with dissatisfaction in its rates on logs.

J. M. Savage, J. Arbuthnot and others in Winnipeg have completed negotiations for taking over the Nanaimo, B. C. mills and timber limits for a sum approximating \$100,000.

The amount of lumber in the tail of the drive at Woodstock is not very great. It was estimated that the full crop will have brought about 10,000,000 feet of logs into the booms this fall.

A meeting of lumbermen operating on the St. John river proposes to take action regarding the refusal of the Fredericton Boom Company to consent to operate their plant at the tolls fixed by law.

W. Barnhill and W. A. McLellan, of Ankerst, N. S., have purchased from the Bros., of Dauphin, Man., thirty-square miles of timber land near the channel, Sask. It is mostly spruce. They will put up a sawmill.

C. P. R. surveyors who have just returned from a trip to examine the E. land grant between Nanaimo and Port Alberni, report a wonderfully fine growth of timber, fir and spruce predominating. The land is very fertile.

J. Stewart, Dominion Superintendent of Forestry, has been on an exploration in the far north beyond Edmonton, into the Arctic Circle. Between the rapids north of Smith's Landing on the River, and Fort Smith, there are large timber tracts, spruce, birch and fir predominating.

The Ontario Government has cancelled a lease issued in 1901 to J. Flett, A.

W. Lowell, and other Toronto and Port Arthur capitalists, of pulp lands and water lots in Thunder Bay district, for nonfulfilment of the terms of the lease, which called for the development of specified units of horse power within a fixed time, and other work.

A. E. Schaeffer, of Mills, Manitoulin Island, who charged R. J. Armstrong, of Gore Bay, with having unlawfully taken a quantity of logs and pulpwood from his premises, and was awarded \$258 and costs in the county court, is not satisfied, and is appealing to the divisional court.

Brennan Bros., Hamilton, have been granted permission to cut timber in Barr township, Temiskaming, the prices fixed by the Ontario Government being \$6.77 per thousand for white, red or black pine and spruce; \$3 for cedar and tamarac. The ordinary Crown dues are \$2 per thousand in addition.

A provincial forestry convention will be held next month in New Brunswick, probably in Fredericton. The Premier and Attorney-General of the Province will shortly visit Washington to gain all possible information as to the care of forest lands, while at the convention a large attendance is expected of lumbermen and forestry experts.

It is estimated that there is a gain of \$230,000 as the result of the first provincial timber sale on the principle of asking tenders for a bonus over and above the regular dues. Sixteen berths were sold in Rainy Lake district to the highest bidders on the tenders called for last July. The prices are bonuses paid in addition to the regular Crown dues of \$2 a thousand feet board measure on pine, and five cents a tie Crown dues on the railway sleepers.

A remarkable expansion is going on in British Columbia's lumbering business. Most of the mills are said to be simply glutted with orders from the North-West. The August log output was 34,000,000 feet, the largest on record. Yet something like a famine is said to be imminent, besides which there is a car shortage. Some of the largest recent investments in the indus-

try have been by men from the United States. All grades of lumber have made another advance of \$1 per thousand.



BLEACHING COLORED FIBRES.

M. A. Jouve describes in the "Revue de la Papeterie," a method of treating natural fibres, more or less colored, with a view to bleaching them and obtaining directly any sort of paper, especially thin papers, such as muslin or cigarette papers.

The natural fibres, whether reduced to a pulp or not, preferably by mechanical means, are subjected to treatment, either cold or hot, according to the case, by an alkaline or alkaline-earthly base. For this purpose an alkaline solution of about 10 per cent. is prepared in which the fibres are put, to be stirred from two to five hours, according to their nature. They can be treated hot and with less concentration in a closed boiler (auto-clave).

The pulp is then subjected to a rough washing and freed from the traces of alkali which it contains by a slight excess of mineral acid, sulphuric, hydrochloric, etc.

This pulp, which is of a natural color, would be unavailable for all the purposes to which it is destined if it were not bleached; it is, therefore, subjected to the action of a solution of manganate or permanganate of from 2 to 50 per cent.

Either manganates or permanganates of potassium, sodium, or barium, etc., may be used. This solution is poured in in small quantities gently while stirring the mass continually until the permanganate has been completely absorbed by the pulp.

When the rinsing water comes away perfectly clear, the pulp is treated with sulphurous acid, sulphites or hyposulphites, and the bleaching is completed. It remains only to wash it in an abundance of water and go on with the subsequent operations well known in paper-making.

For the purpose of economizing as far as possible the manganate or permanganate and of facilitating its action upon coloring matter and not upon the fibre, a certain quantity of a bleaching hypochlorite may be added to the manganate or permanganate bath. The whole or part of this bleaching chloride can be used upon the fibre before the manganate or permanganate is added, thus the destruction of the coloring matter may be aided.

It is hardly necessary to say that in the treatment with manganate or permanganate, mixed with the hypochlorite, a thorough washing is necessary to remove the excess of this latter product which otherwise would render useless the sulphurous acid or the sulphites or hyposulphites which are used to finish the treatment.

The advantage of this process is that it makes it possible to obtain uncolored paper at a low price, working as raw material on rough fibres of small value, whereas hitherto it had been necessary to use rags of much greater value.



DILLON CALENDAR DOCTORS MADE IN CANADA.

The Dillon Machine Company, Lawrence, Mass., report a very busy and successful year's business. At the present time they are getting out one of their improved 100-inch paper cutters for John R. Booth's large mill at Canawana; one Jordan, two triplex pumps, three chests, two beaters and a water filter for the High Falls Pulp and Paper Co., Chateaugay, N. Y.; ten large size Jordans for the Great Northern Paper Company, one large Jordan for the Claremont Paper Co., and a heating engine for the fibre Company, Orangeberg, N. Y. They have also an order for nine sets of calendar doctors. The Dillon calendar doctors and feeds are now made in Canada by a reliable firm, and mills sending their orders to the Dillon Machine Co. will save the duty on these very necessary appliances.

NEW SULPHITE PROCESS.

Robert Roe, Jr. of Niagara, Wis., has been granted a patent for a process of manufacturing chemical or sulphite pulp.

In the manufacture of chemical or sulphite pulp from wood the latter is in the form of chips. These chips are cut from logs (occasionally from stumps and saw mill waste) usually by means of a heavy circular revolving disk upon the face of which are set several knives bolted in position and at an angle that when a log or piece of wood is pushed against the revolving disk a chip about three-quarters of an inch in length is cut off by each knife in passing, which chip is so cut off not diametrically of the log or piece of wood, but in a direction diagonal to the diameter. This action of the revolving disk is similar in its results to the action of a hatchet. These chips have heretofore not been dried artificially, and it is necessary that they should be so dried; but the inventor claims that much better results are obtained by the artificial drying of the chips before they are introduced into the digesting apparatus and there subjected to chemical action.

In the cutting of wood chips, as described, a considerable portion of the product of the operation is waste, consisting of knots, dirt and other refuse matter. The good chips have sometimes been separated from this waste refuse by throwing the whole into a tank of water, with the result that the good chips float and the knots and other undesired matter sink. Sometimes the good chips, however, may be or become water-logged, and these will sink also. Such chips have usually been thrown away with the waste; but as the amount sometimes to as much as ten per cent. of the entire product it is thought desirable to recover the lost chips so lost. This is accomplished by drying in a suitable apparatus the whole of such waste product, whereupon it is all thrown into the tank of water a second time with the result that

the good chips, which before were water-logged, and consequently sank, now float and are taken out, while the knots and other heavy undesirable substances again sink and become waste. This floating or drying and floating operation, however, is wholly for the purpose of separating out the chips, which are proper for the pulp manufacturer, and in every instance the chips, which go into the digesting apparatus for chemical treatment, are those which are more or less wet.



LAURETIDE PAPER COMPANY.

The annual meeting of the Laurentide Paper Company took place in Montreal on the 16th ult., when the several reports which were presented were deemed thoroughly satisfactory. The net profits, after providing for interest and other accounts, amounted to \$271,845.70. From the profits were paid four quarterly dividends of one and three-quarters per cent. on the preferred stock, and two semi-annual dividends of three per cent. on the common stock, aggregating one hundred and eighty thousand dollars. The sum of twenty thousand dollars was added to the reserve, leaving a surplus of \$71,845.70, to be carried forward from this year's profits. The sum of \$25,000 is included in the working expenses for extraordinary repairs, changes, and improvements.

The plant of the Laurentide Paper Company, Limited, at Grand Mere, has been fully maintained and is in excellent condition, while the prospects for the ensuing year are bright and quite encouraging to the management.

The company owns 17,000 miles of limits, and the amount of timber land at their disposal is sufficient, allowing for growth, to supply the mills for all time. It desires to make a great timber reserve of these limits and the property has increased enormously in volume within the past few years. The company, as is well known, does a large exporting business,

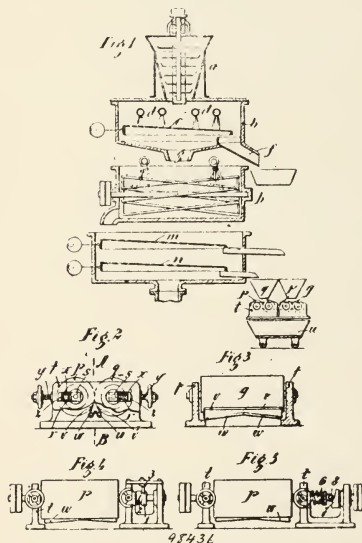
shipping mainly to Great Britain and Australia.

The financial statement was unanimously adopted. Directors for the ensuing year were elected as follows:—President, Sir William Van Horne; vice-president, and manager, Mr. George Cahoon, Jr.; Mr. R. B. Angus, Mr. C. R. Hosmer, Mr. Edwin Hanson, Mr. C. F. Smith, and Mr. James Ross.



RECENT CANADIAN PATENTS AFFECTING THE PULP AND PAPER TRADES.

No. 98,436.—Manufacture of Half-Stuff from Peat.

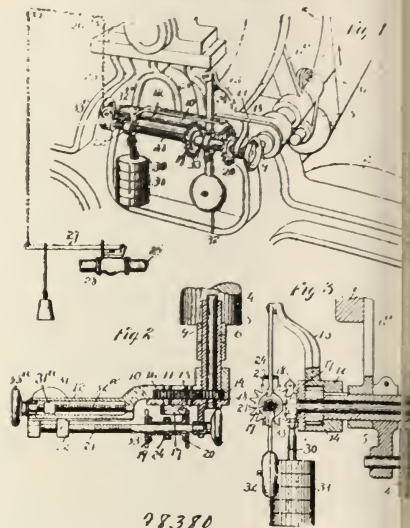


Anton Kirner, Admont, and Eugenie Pollak, Vienna, both in Austria, 10th April, 1906; 6 years. Filed 7th November, 1905. Receipt No. 129,872.

A process for the production of half-stuff from peat, consisting of sorting the disintegrated peat mass by passing it through two or more classing sieves or jiggers the meshes of which correspond in size with the sizes of the constituent parts, crushing the masses of material between corresponding pairs of rollers, rotating in opposite directions and with

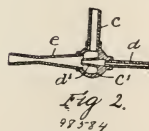
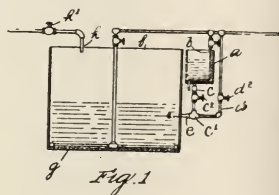
different velocities, the pairs of rollers being pressed with different degrees of force one against the other in such manner that the coarser constituents are passed between the rollers while the finer are pressed most strongly together.

No. 98,380.—Regulator for Paper-Making Machine.



Louisa P. Strickland, Brooklyn, New York, U. S. A., administratrix of the estate of James P. Pickles, 10th April, 1906; 6 years. Filed 21st December, 1905.

No 98,584.—Process of Dissolving for Paper Making.



Bruno Kniffler, Stoneham, Massachusetts, U. S. A., 17th April, 1906; 6 years. Filed 22nd March, 1906.

No. 98,740.—Paper Machine.

Sandy Hill Iron and Brass Works, Sandy Hill, assignee of James W. Packer, Glens Falls, both in New York, U. S. A., 12th April, 1906; 6 years. Filed 1st February, 1906.



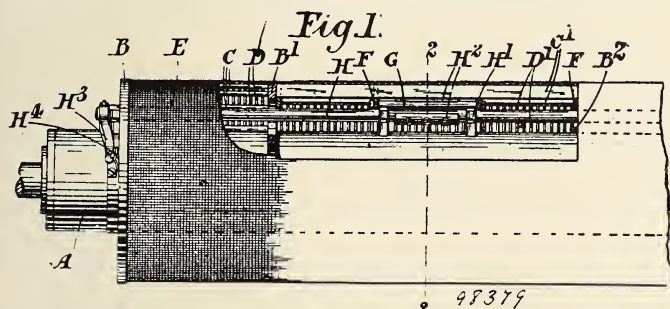
aim.—1. The process herein de-
ed of preparing size for paper mak-
which consists in heating a meas-
volume of resin size, and spraying
liquified size into a measured vol-
of hot water, to produce an emul-

sion, and then adding to the emulsion
thus produced a measured volume of
cold water.

2. The process herein described of
preparing size for paper making, which
consists in heating a measured volume

of resin size, then spraying the liquified
size into a measured volume of hot wa-
ter to produce an emulsion, and then
agitating the emulsion thus produced
and adding thereto a measured volume
of cold water.

No. 98,379.—An Apparatus for Water-Marking Paper.



V. K. Trotman, Roseneath, Wood Green, London, 3rd April, 1906; 6 years. Filed 16th January, 1906.



THE SOO INDUSTRIES.

The position of the Consolidated Lake
Superior Company's varied industries at
Ste. Marie, Ont., appears to be
satisfactory. Half of the original \$2,-
000,000 guaranteed by the Ontario Gov-
ernment on behalf of the Canada Im-
provement Co., who had taken on
financial responsibility for the continu-
ance of operations, was paid off last
year, an extension being given for the
balance until the first of the present
month. Now, payment on this balance
of \$1,000,000 certificates has been further
extended for five months, to April 1st,
1907, the company, however, paying in-

terest now for the past six months. The
latter's business and operations are go-
ing on satisfactorily, but the extension is
needed owing to various delays and to
the raising of the Bank of England rate
to 6 per cent.



THE BUCKINGHAM SITUATION.

The aftermath of the Buckingham
riots is still in doubt. That is to say, in
regard to the actual legal consequences
to the chief parties engaged. Public
opinion has remained at fever heat,
though the awful results of the outbreak
had naturally a calming influence. At

the inquests on the three unfortunate men who met with their death, the evidence as to who began the firing was very conflicting, and there was evidently much bitterness on both sides. The moral, however, seems to be clear, whatever may be the nature of the dispute, that for either side to prepare by arming themselves with deadly weapons is a folly only too apt to precipitate the worst results. As to the McLaren mills, practically nothing has been done since the riot, except that a small gang of men have been engaged in the woods under military protection, getting out logs for the pulp mill.



BRITISH PAPER TRADE.

The imports of paper, etc., into the United Kingdom in September were £453,799, as against £452,380 for September last year, the total quantity being 727,618 cwts., as against 689,774 cwts. Last month's imports comprised: Unprinted paper, 453,030 cwts., £323,194; hangings and other printed or coated paper, 15,308 cwts., £40,496, and straw, mill and wood pulp boards, 259,280 cwts., £90,109. Compared with September of last year the imports of unprinted paper show an increase of 17,719 cwts., but a decrease in value of £135; hangings and other printed or coated paper, a decrease of 736 cwts., and £5,711, and straw, mill and wood pulp boards, an increase of 21,401 cwts. and £7,265.

The imports of paper, etc., for the nine months ended September last amounted to £4,268,241, an increase of £457,176 compared with the corresponding period of last year.

A noteworthy feature is that the imports from the United States show an increase of £12,150, compared with January-September of last year. There was also an increase of £15,830 in the supplies from Germany, but from Netherlands, Belgium and France the decreases were: £19,279, £672 and £2,800.

VISCOSE FOR SIZING PAPER

The first stage of the manufacture of viscose is the preparation of what is called alkali-cellulose, or what was formerly known as Mercerised-cellulose from the name of its inventor.

An alkali-cellulose adapted to the use of papermakers has approximately the following composition:—

Cellulose—25 per cent.

Alkali—(NaOH) 15 per cent.

Water—60 per cent.

This is generally prepared by taking, say, 100 pounds of well-beaten pulp containing 50 per cent. moisture, and grinding the same in edge-runners. While the grinding action is going on, a solution of caustic soda is added in 25 lbs. of caustic soda solution is added at 25 degs. Tw. and equal in weight to the weight of the wet pulp taken. The alkali should be added in a slow stream; if added too quickly the stuff becomes greasy and the stones are liable to break, but if added slowly the alkali is taken up by the cellulose; the whole operation takes about three-quarters of an hour. The so-called alkali-cellulose consists of fibres swollen by absorption of alkali and water, and when cotton or linen is used is not unlike snow in appearance. This alkali-cellulose should be stored in a cool place, the temperature not exceeding 60 degs. F., in air-tubs kept from contact with the air; the air is allowed to get in contact with the alkali-cellulose the carbonic acid in the air combines with the alkali, producing carbonate of soda and rendering the cellulose no longer susceptible to attack of carbon bisulphide. It is a regular practice to examine different batches of alkali cellulose, the results of which were recorded. With care, regularity can be ensured. A simple method of examination is to weigh 10 grms. of alkali-cellulose, taking care that an average sample is selected. This is added to about 150 c.c. hot water, agitated for a few minutes, and filtered through muslin into a litre flask, washed with hot water until free from alkali. The filtrate is cooled, made up to 1,000 c.c. An aliquot portion

ated after further dilution with re-
ely boiled and rapidly cooled dis-
id water in presence of phenolph-
thin until red color is just discharged,
th to neutral tint with methyl-orange.
The residue on the filter is dried at 150
deg. C. Weight + 7 per cent., equals
dry weight of cotton or linen cellu-
lose, or if from wood pulp one-ninth is
added for air-dryness.

On account of the liability of alkali-
cellulose to be affected by heat it has
to be stored in the cool; the effect of
heat is to bring about a molecular
change in the alkali cellulose, rendering
it less service in the sizing of paper,
as will be demonstrated hereafter. For
ordinary purposes alkali-cellulose can
be stored for several weeks or even
months in the temperature above given,
but if brought into a temperature such
as prevails in the summer months it
will last only a few days.

The word "crumbs" is used to de-
scribe alkali-cellulose, in consequence
of the close resemblance of alkali-cellu-
lose as prepared for papermaking to
ordinary bread crumbs.

The alkali-cellulose has next to be put
into a revolving barrel or churn, which
is about three-fourths filled, and carbon
bisulphide equal to one-tenth the
weight of the alkali-cellulose is then
added, and the churn revolved for fifteen
minutes to thoroughly mix the ingre-
dients; it is then allowed to stand. It is
best to do this at a uniform temperature,
say at 70 degs. F.; at this temperature
the reaction takes about two hours.
The carbon bisulphide combines with
the alkali-cellulose to form a compound
which is soluble in water, the color
changes from white to brilliant yellow,
and darkens to a brown shade if allowed
to remain long before dissolving. In
mass reactions even in 1 cwt. batches
one has to guard against sudden rise of
temperature. Little or no rise is noticed
when the initial temperature is in the
neighborhood of 60 degs. F., but at 75
deg. to 80 degs. the temperature may
rise, due to the rapidity of the reaction,
to such a final temperature as to bring
about a complete reversion of viscose,

producing again insoluble cellulose as a
large ball or lump in centre where the
temperature has reached its highest
point.

The yellow mass, which has some-
what the consistency and appearance of
fine particles of butter, is discharged
from drum and agitated with one and
a-half times its weight of water, giving
rise to a yellow thick viscous solution
to which the name of "Viscose" has
been given. This solution contains 10
per cent. of cellulose. In course of time
the solution darkens in color, changing
from that of golden syrup to ordinary
molasses.

In an article in the "Chemical News"
Mr. Clayton Beadle says he would like
to point out the importance of making
the viscose under the most favorable
conditions, as so much depends upon
this as to whether the result is good or
not. This remark applies, of course, to
all applications of viscose, each appli-
cation requiring viscose manufactured
in a particular manner. First, the time
the alkali-cellulose is kept before the
carbon bisulphide treatment, alters the
viscosity of the solution; thus, if it is
kept a long time, the viscosity of the
solution produced from the same is low-
ered; if, on the other hand, the solution
is made up from fresh crumbs, it has its
maximum viscosity; but alkali-cellulose
can be stored for weeks in a refrigerator
without bringing about very much
change in the viscosity of the solution
produced from the same. The molec-
ular change can, therefore, be promot-
ed by heat or arrested by refrigeration;
the exact change or rate of change be-
ing dependent upon the temperature.
At a higher or critical temperature the
change is so rapid as to break down the
cellulose to a useless product in a few
minutes. At the freezing point (or
below) the change is practically arrest-
ed. One could draw up a curve to illus-
trate the rate of change at different
temperatures which would be highly in-
structive to those engaged in viscose
making.

It follows then that if alkali-cellulose
is stored in a hot place the resulting

solution is comparatively thin; even if the alkali-cellulose is kept for only a couple of days in a warm room the solution would be very much thinner and less viscous. It is possible, by altering the temperature, to very much control the condition of the solution to suit various requirements. It cannot be said, however, that time and temperature are altogether interchangeable factors, as there are conditions of solution brought about by storing at moderate temperatures which cannot exactly be imitated by elevating the temperature for a short period. The slow process of ageing is almost always preferable.

Then, again, the amount of alkali in comparison with that of cellulose present, very much influences the viscosity of the resulting solution; within limits, the higher the alkali the lower the viscosity, and vice versa. The alkali can be lowered to say 12 per cent. on the weight of alkali-cellulose or 50 per cent. on cellulose, but for most ordinary purposes it is not advisable to do this, because there is a danger of leaving a considerable proportion of the fibres still unacted upon. There is, therefore, no economy in sparing the amount of alkali if such results in certain of the fibres being left unacted upon. The composition given above is about the most useful all-round one. The viscosity of the solution can be lowered by the addition of caustic soda direct to the viscose solution. This, however, is not to be recommended for paper sizing.

The effect produced by the viscose in strengthening and hardening the paper is more dependent upon viscosity of the solution than upon its percentage strength in cellulose. This is a cardinal point to be remembered. The higher the viscosity the greater the strength-giving effect. If given two solutions of equal strength (say 10 per cent.) one prepared to be very viscous, and the other very thin or non-viscous, it is quite possible that the former may have five times the strength-giving effect of the latter. It would be necessary, therefore, to use five of the latter to one of the former. The art, therefore, of

preparing viscose for this purpose is to do so in such a way as to give its maximum strength-giving and hardening effect, so that the desired result may be brought about by the use of the minimum quantity of viscose. It is, however, necessary to distinguish between a "ropiness" due to untreated partially treated cellulose and proper viscosity of the solution.

Viscose has a property of coagulating or becoming insoluble. The solution at first hardens to a jelly, forming an insoluble cellulose, but in a hydrated condition. If, however, the solution is extremely dilute, as it is in an ordinary papermaker's beater, and agitation is going on at the same time as coagulation is taking place, instead of homogeneous jelly being formed, a flocculent precipitate of cellulose is produced, which, in contact with the pulp on the paper machine can be made to agglomerate into one continuous mass, and give strength to the paper by glueing the fibres together. The art of viscose sizing is to bring this change about as to give the maximum benefit to the paper. It is advisable to use the viscose solution within a short period of the time of manufacture: it will not keep indefinitely, and for this reason it should be by preference made in the paper mill where it is to be used. The effect produced is not unlike that due to prolonged beating with dull tackle, whereby some of the fibre is munched up into a gelatinous mass of hydrate, which has the power of acting as an adhesive, and glues the fibres together when made into pulp.

When a dilute solution of viscose is added to the papermaker's beater no precipitation does not take place quickly, particularly with freshly made viscose. It is necessary, therefore, to add some substance which will bring about precipitation of the cellulose, but in such a manner as to preserve its flocculent sticky condition. Ordinary mineral acids will precipitate it at once, but destroy its good qualities; alum, also, is too acid a substance, and in a measure has the same effect as mineral acids.

something is needed to precipitate the cellulose in a more gentle fashion; this can be accomplished by the addition of magnesium sulphate or zinc sulphate. These salts decompose the soluble compound, leaving the cellulose suspended in contact with the fibres and the pulp neutral.

Various trials that the writer made led him to the conclusion that there is a great distinction between the percentage rate of increase of strength of the paper and the absolute increase in strength of the paper where one is dealing with the question of added cellulose or gelatin. It is possible from the trials made, which were conducted in a manner to observe any slight difference that might arise, to arrive at certain definite conclusions:—

First of all, the maximum strength for 1 per cent. added cellulose in the form of viscose is imparted to the paper even viscose of the maximum viscosity is used. The maximum effect for each per cent. of cellulose is obtained when small amounts are added (i.e., 1 per cent. or less); thus 2 per cent. would exert double the effect upon the paper that 1 per cent. does, nor would 4 per cent. exert double the effect upon the paper that 2 per cent. does.

There appears, furthermore, to be a limit to any increase of strength due to the addition of viscose; for example, a point may be reached in one paper on the addition of 5 per cent. of cellulose, and in another on the addition of 10 per cent., beyond which the additions of further quantities of cellulose as viscose would give no increase of strength.

He points out, in conclusion also, that the effect of viscose sizing is somewhat similar to the effect of excessive or prolonged beating in the Hollanders. In the case of prolonged beating the fibres are more or less hydrated, and a certain amount of cellulose is formed which causes the stuff to work wet, and gives it greater strength and hardness. In the case of viscose sizing, instead of affecting the fibres themselves, the cellulose hydrate is added or precipitated, giving to the pulp somewhat the same

properties as if the beating had been prolonged.

A proper appreciation of the factors which go to produce viscose of suitable properties for paper sizing is indispensable. It is no difficult matter to produce viscose that will be useless for the purpose. On the other hand, with a careful study of the conditions and proper control in the factory the best results can be got with much smaller quantities than is commonly supposed. This applies with equal force to sizing of webbing.



EXPORTS OF PULP AND PULP-WOOD.

Canadian exports of wood pulp to Great Britain are increasing. For the year ended June 30th the value of shipments was \$998,702, as against \$680,199 in 1905, and \$548,720 in 1904. In the same period the exports of pulp to the United States were valued at \$2,419,628, compared with \$2,694,122 and \$1,807,442 in 1905, and 1904 respectively. Total Canadian exports of wood pulp for the year ending June 30th, 1906, were \$3,478,150, compared with \$3,399,158, in 1905, and \$2,409,074 in 1904.

A fairly good business is being done by the paper mills, and they are experiencing a good demand. Raw materials, however, are too high-priced for much profit to be realized.



PRODUCTION IN SWEDEN.

At a recent meeting of the Scandinavian Wood Pulp Society, it was stated that the production of mechanical wood pulp in Sweden would this year be considerably under what was expected. The present scarcity of water will also probably have a bad effect on next year's production. An increase in prices may therefore be expected. Several new sulphite mills are either being or to be built in the country within the near future.

The Old Firm of T. J. Marshall & Co.

With the name of T. J. Marshall & Co., Stoke Newington, London, there may be said to be associated the whole history of paper-making, that firm's books probably presenting the complete record of the advance of that article in existence. The Marshalls have always been in the forefront of progress, and many of the most important new features in the manufacture of paper have been introduced by them. Quite recently the "Pulp and Paper Magazine" had a fully

in reputation, turning out machinery appliances of the most reliable character both for hand and machine-made paper and Mr. Marshall became noted for ingenuity and resourcefulness, as well for the ability with which he adapted then existing machinery to the various requirements of manufacturers. In 1840, however, he added an entirely new feature to the paper machine by the invention of the dandy roll, with which name will ever be associated. The dandy



T. Allen Marshall.

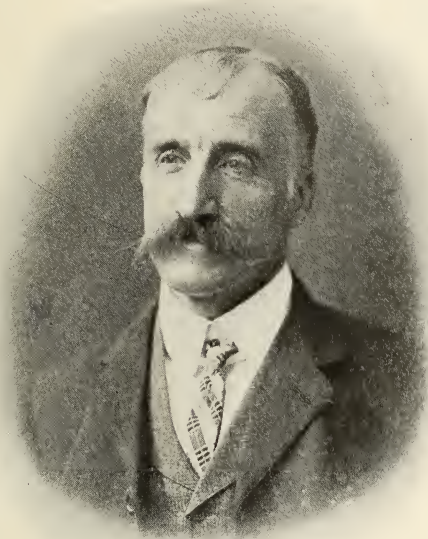
illustrated article on the World's Smallest Paper Machine which was designed and made by this enterprising house. The thought occurs in this connection that, in spite of talk to the contrary, the manufacturers of the Old Country are about as far away as they can be from any tendency to become back numbers.

In 1792 John Marshall established himself at Dartford as a paper makers' engineer. His works gradually advanced

roll is a skeleton cylinder, tightly covered externally with very fine brass wire cloth. It is fixed across the paper machine and caused to revolve by an endless web while the pulp passes underneath, the pressure of the dandy roll closing the upper surface of the paper, assisting the vacuum boxes to remove the superfluous water from the pulp, and afterwards last—but not least—impressing the watermark, an appellation which is stuck to the roll ever since.

In 1846 Thomas John Marshall took premises in Bishopsgate Street, and part of the business was removed there from Delford. He doubtless had long desired to be in closer touch with the important work for which the Bank of England authorities had already retained his services as an expert. For somewhere between 1820 and 1830—the exact date is

It is supposed that the name "Dandy" given to the roll used for producing the laid, wove, and water-marks was first used at Joynson's Mill. When a large new roll was brought in, looking very spruce and bright, as new dandy rolls always do, one of the men exclaimed, "Isn't that a dandy" and the name has been applied to these rolls, thousands



C. Dudley Marshall.

is precisely known—and before the "old Lady of Threadneedle St." as the Bank has been cynically dubbed, manufactured her own moulds, Mr. John Marshall was appointed to make them at a salary of £500 a year, and he attended in his own room at the Bank at intervals during the week, besides transacting the editorial affairs of his own establishment.

The body of the first dandy roll was about 6 feet long by 17 inches circumference. The old laid and wove moulds made in 1825 are also interesting.

and thousands of which have been made since that time and used in all parts of the world.



LOCKWOOD'S DIRECTORY.

The issue just out of Lockwood's Directory of the Paper, Stationery and Allied Trades is the thirty-second edition of that standard book. It shows several improvements. Old departments have been enlarged and the statistics made fuller. The scope of this volume may be

gathered from a consideration of some of its noticeable features. For instance, it contains 824 pages, including inserts. There are particulars of 828 paper mills in the United States and 47 in Canada; 252 pulp mills in the United States and in Canada 57. There are 149 ground wood mills in the United States and 42 in Canada. Of soda fibre mills there are 22 in the United States and 14 in Canada. Of sulphite fibre mills there are 73 in the United States and 10 in Canada, with 3 wood flour mills in the United States. Of these mills 13 are idle. Of projected mills in the United States there are 19. In addition to the above it contains much valuable statistical matter, such as a list of trade associations, with names of officers; New York paper stock grades, the paper trade census of 1904, useful information for box board buyers, gauge lists, ream weights of box boards, try scale weights and numbers for ascertaining weights and numbers of roll board, definitions and rules for figuring paper box board, tables of comparative sizes and weights of flat writing and cover papers, useful data for paper-makers, etc., etc.



TURBINE WATER-WHEEL TESTS.

The United States Geological Survey has issued a paper of unusual interest to engineers and users of water power in a complication of turbine water-wheel tests and power tables. The results of tests of McCormick, Hercules, Samson, Swain, and other modern wheels by the Holyoke Power Company serve as a basis for the bulk of the data, but other tests and manufacturers' tables have been utilized whenever available. One object of the paper has been to furnish information required in measuring the flow of streams where the turbine is used as a water meter. The paper contains rating tables and the results of tests of different makes of turbines with register, pivot, or cylinder gates, so that the power de-

veloped at the mills and the quantity of water used can be determined from the size and type of the wheels. As the water-rights of mills can often be definitely ascertained only from the quantity of water used, and as some of the wheels are no longer built or catalogued, records of tests of the older types will be of great value to engineers who may be required to determine questions of water-rights. The paper contains a clear presentation of the evolution of different types of turbines, all available data relative to the efficiency of the wheels and the power developed, a description of the best methods of turbine setting and arrangement, and a discussion of the conditions that govern economy in size and number of turbines used.



THE WONDERS OF CELLULOSE

A writer in "Harper's Magazine," Professor R. K. Duncan, believes there is a brilliant opportunity for somebody to transform wood cellulose into the new permanent cotton-cellulose variety. This is probably an equally good opportunity for some improved method of turning into utilizable chemical products the portion of the wood torn away from the cellulose?

This constitutes 50 per cent. of the weight of the wood, and at the present it goes down the drains—an example of horrible waste. In the paper industries themselves chemistry is applied in a variety of ways. For example, there is a question of sizing the paper in order to make it resistant to ink, there is a question of making paper waterproof, there is the gentle art of making the paper appear other than it is by loading it up with extraneous material. In some matters as these chemistry is entirely applicable, and the present practice is fortunate.



The Merchants' Check Book Co., Toronto, are building a two-story factor-

Mill Matters

Mr. J. R. Booth's pulp mill has been out of operation for some time, owing to the insufficiency of water.

The Nepigon Pulp and Paper Co. offered to supply electric power to Port Arthur for \$15 and \$20 per horse-power, but their franchise is now reported to be cancelled.

E. Reed, a prominent English paper miller, and who is largely interested in the Dominion Pulp Co., Hull, has joined the board of directors of the Canadian Pacific Sulphite Pulp Co., Ltd.

An American company has bought 300 acres of timber land near the headwaters of the Gasperean and Forks rivers, Nova Scotia, and is preparing to erect a dam and pulp mill near White River.

Hitchie & Ramsay, Toronto, are bringing out an effective little pamphlet giving an example of their new feature, gummed paper, a plant for producing a fine grade of which they have recently patented.

The Standard Paper Co. has taken out patents for a process used in Michigan for quickly converting peat into paper, and will put up a plant near Biverton, Ont. Mr. G. H. Howells, of the Grip Engraving Co., Toronto, has a controlling interest.

C. Wilson & Co., paper manufacturers, Montreal, Lachine and St. Jerome, have put in a new pulp grinder at their mill at St. Jerome, raising the capacity of the mill to 18 tons per day, the regular output now being 15½ tons. The new grinder is made by the Pusey & Jones Co., Wilmington, Del.

A statement of the affairs of the Western Canada Pulp and Paper Co., which is in the London Bankruptcy Court, shows unsecured liabilities of £3,310, and assets nil. The promoter, it appears, was to have received £37,000, but, owing to litigation with the underwriters, the company was not successfully floated.

The plans of the Canadian Pacific Sulphite Pulp Co. in British Columbia, are nearing towards completion. Messrs.

Sawyer and Yale, of London, who are prominent among those interested, have been on a visit of inspection to the large tract of land at Swanson's Bay, recently acquired from the Provincial Government, and of the water-power in connection. Engineers are making the final plans.

The Ontario Government has given the contract for printing the Revised Statements to Warwick Brothers & Rutter, Toronto. The work will be in three volumes of about 1,700 pages each, and the cost will approximate \$100,000.

The St. George Pulp and Paper Co., St. John, N.B., is beginning the construction of a new steel and concrete sawmill to take the place of the one destroyed by fire. It will be of larger capacity than the old one.

The E. B. Eddy pulp mill has been employed chiefly on wood obtained from the Rouge, Des Moines and Coulonge rivers. Many of last season's logs, however, are still held over, as the mill has not been able to operate as actively as usual.

The Ontario Sales Office of the Jenckes Machine Co., Limited, has been moved from 12 Lawlor Building, Toronto, to St. Catharines, Ont., where it will in future be operated in conjunction with the extensive Branch Works of the company there. Mr. W. G. Chater, as formerly, will be in charge.

What little work has been done by the James MacLaren Co., at Buckingham, Que., since the disastrous strike, has been almost entirely in connection with the pulp mill. A few men have been employed under military protection sawing blocks for that mill, but naturally no great amount of work has been done.

The International Paper Company, holders of Letters Patent, Nos. 53,683, 57,344, for improvements in bark cutters; 60,313, for improvements in wood sawing machines; 62,695, for improvements in bark cutting machines; 64,575, for improvements in log thawing machinery; 64,893, for improvements in boiler furnaces; 67,239, for improvements in machines for removing the bark from

slabs of wood; 67,751 for improvements in attachments for pulp wood clippers,—will apply for a special Act to grant a certificate of payment of the further fees required by The Patent Act and an extension of each of the said patents for their full term of eighteen years and to confirm the said patents.

Late last month an agreement was arrived at between the Eddy, Booth, and other interests, and the city of Ottawa, which it is believed will result in a more systematic conservation of water power at Chaudier Falls, and an equitable distribution of available energy among the various users according to the terms of their water leases. We understand a dam is to be built across the Ottawa just above the falls, thus providing for a reservoir.

The failure of pulp and paper enterprises in Canada promoted by Englishmen would appear to be due largely to their neglect to possess themselves of timber limits. A recent example is the Canadian Pacific Pulp and Paper Co., Ltd., London, which was wound up a few weeks ago, and which, in spite of its name, it now transpires, had no timber limits. For a pulp and paper company to enter on its career without limits is akin to a hydraulic company starting business without water-power.

Much interest is being taken in England in the opening of Peter Dickson & Sons' paper mill in Grimsby. It was said by Lord Northcliffe, who officiated, to be the first new paper mill, not counting extensions of course, in England for twenty years, though we are under the impression that one was built not longer than ten years ago. In his after-luncheon remarks, Lord Northcliffe stated he was glad that the mills "would give occupation to people in far-away parts of Canada, and also, he hoped not to so large an extent, to people in Scandinavia."

W. H. Rowley, president of the E. B. Eddy Co., Hull, has been on a prolonged visit to the West, and reports come from Edmonton that that widely known manufacturing house contemplates establish-

ing a branch factory in that city. Rowley informs the "Pulp and Paper Magazine," however, that the visit undertaken with a view to learning general situation in the West, and no such decision as the above has definitely arrived at. Mr. Millen, joint manager and general superintendent of the company, will shortly go to the ground.

The Cushing Sulphite Fibre Company property at Pleasant Point, N.B., sold last month to Mr. A. H. Hanington, who acted for Capt. Partington, the largest bond and shareholder in the old company for \$416,000. Except for one or two comparatively unimportant issues the sale is believed, will end the legal complications which have been in progress some years. The amount realized, together with the funds in hand, will also satisfy the bond issue, the accrued interest and the costs. The equity of redemption which was recently purchased by Capt. Partington for \$30,000 will be distributed among the shareholders whose interest in the property has ceased.

A report was current in Montreal last month that the Royal Paper Mill at East Angus, Que., had been sold to a United States syndicate headed by Mr. Van Dyke, of the Connecticut Lumber Co., the price being variously stated at half a million to a million dollars. We understand that the reorganization of the mill is looked for, but that such a deal has not yet been accomplished. Mr. Van Dyke, whose name, along with that of Mr. Kilgour, of Kilgour Brothers, paper dealers, of Toronto, has been associated with the proposal, is already a large shareholder in the present company. The paper mill of the Royal Paper Mills is still closed, but the other mill is running, and is shipping its product to the United States.

Mr. J. Craig, manager of the Imperial Paper Mills of Canada, Sturgeon Falls, Ont., has been appointed receiver of a company, and of the Northern Sulphite Co., also located at that place, with a view to effecting an amalgamation of the

cerns. Arrangements are being made for enlarging both plants. The Northern Sphite Co., who now have a chemical plant capable of turning out 35 tons per day will be doubled in capacity, and that of the Imperial will be enlarged, we understand, in the same ratio. Efforts will be made to obtain new capital to the extent of £300,000, under which circumstances it is calculated an annual profit would be earned of £43,000. The total income sustained so far is given at £280,-

3. The Iberville Lumber Co., whose headquarters are in New York City, are establishing a large sawmill at Sault-au-Muton, Que., a point on the north shore of the St. Lawrence, some distance below the Sauguenay. The contract has been placed with the Jenckes Machine Co. Limited, of Sherbrooke, covering the turbine plant to furnish power for the sawmill. This plant consists of two 20" special Crocker Turbines, each developing 200-horse-power, one special 15" Crocker Turbine developing 100-horse-power, all operating under 62' head. The three turbines are horizontally set in a large steel case to which the water is conducted through a steel penstock 4' in diameter by 150' long. All of the turbines are of the Cylinder Gate type. Mr. A. N. Mercier, of Quebec, is the Superintendent of the new company.

The Maine & New Brunswick Electrical Power Co., which is developing a water-power at Aroostook Falls, New Brunswick, has awarded contracts for the necessary equipment. The turbine plant will be built by the Jenckes Machine Co., Limited, Sherbrooke, Que., and will be composed of two 900-horse-power units, each consisting of a pair of special 21" Cylinder Gate Crocker Turbines, each pair mounted on a cast iron shaft tube discharging centrally set in concrete flume and running 600 revolutions per minute under 72' head developing 80 per cent. efficiency at full gate. The turbine runners are cast bronze and the construction throughout is of the most substantial character. One Lom-

bard type "P" Water-Wheel Governor will be attached to each unit. A steel Penstock 6'-6" diameter by 75' long conveys the water from forebay to each unit. Each unit will be direct connected to a generator, the order for which was placed with the General Electric Co., Schenectady, New York. The headquarters of the Maine & New Brunswick Electrical Power Co., are at Presque Isle, Me., and the order for the turbine plant was placed in Canada after most thorough investigation and comparisons with the product of American turbine makers.



NEW INCORPORATIONS.

The Musson Book Company has been authorized to increase its capital stock from \$40,000 to \$100,000.

The Ontario Government has granted a license to the Ottawa Pulp & Paper Co., Ltd., incorporated under Dominion laws, to do business in the Province of Ontario. The company has appointed W. J. Code, of Ottawa, its attorney.

The B. F. Graham Lumber Co., Ltd., Victoria, has been incorporated under British Columbia charter, with a capital of \$100,000, to acquire timber limits, do business as lumbermen and pulp-mill proprietors.

Publishers, Limited, Toronto, has been granted an Ontario charter to acquire and publish newspapers and other publications, and do business as printers, engravers, etc., with a capital of \$50,000. J. S. Denison and J. C. MacMurchy, of Toronto, are provisional directors.

The McNair Lumber Co., Ltd., has received a charter under British Columbia laws. Its capital is \$100,000, and it is authorized to carry on business as lumber merchants, and sawmill proprietors, and lumbermen, to acquire and build pulp and paper mills and machinery.

Two of the largest publishing businesses in Montreal are joining together, E. M. Renouf and the Cambridge Corporation, Ltd. Mr. E. M. Renouf will

be president, and Chas. A. Ross, managing-director. The main office will be in Montreal, with branches in Toronto and Winnipeg.

The Rawdon Lumber Co., Limited, has been incorporated under Dominion charter, with a capital of \$49,000, and head office at Rawdon, Que. It will carry on business as manufacturers of timber, and operate saw and pulp mills. T. Belanger, of Valleyfield, and A. Belanger, of Montreal, are members.



TRADE ENQUIRIES.

The following enquiries relating to the Canadian trade have been received at Ottawa. The names of the firms making these enquiries, with their addresses, can be obtained upon application to; Superintendent of Commercial Agencies, the Department of Trade and Commerce, Ottawa, or the "Pulp and Paper Magazine," Toronto.

1306. Engines, boilers, etc.—A Yorkshire engineering firm manufacturing hydraulic forging presses, steam hammers, rolling mill plants, blowing colliery and winding engines and plants, also hydraulic pumps, engines and boilers, desires to get in communication with Canadian buyers, and invites correspondence.

1322. Rags.—A London firm wishes to get into communication with Canadian buyers of rags, cotton and woolen, paper and scrap metals.

1342. Wood.—A London firm is desirous of corresponding with Canadian houses in the lumber trade in a position to supply wood for piano sounding boards, the price delivered being three-pence per foot (super.), width, four inches and upwards; in 5 ft. 6 in. lengths.

Wood Pulp.—An Edinburgh firm in direct touch with Scottish buyers is desirous to open correspondence with Canadian exporters of wood-pulp of all kinds.

KRAFT PAPER.

The Origin of Its Manufacture.

Some interesting particulars have lately appeared in the "Wochenblatt" concerning kraft paper, described as making "force paper," on account of its special strength and firmness.

This paper was originated scarcely 20 years ago. The invention was made by accident. A Swedish "cellulose worker," as they call the cook, was about to reject a boil of soda pulp into the waste department because the stuff was boiled into as soft a state as usual. The wood pieces were too hard for allowing the rubbing into particles between the fingers. But the technical mill director desired to save something good out of the stuff and placed the half boiled wood on the kollergang, or edge runner, in order to get some sort of stuff that would be good enough for making a cheap wrapping paper for mill use. Contrary to all expectations the product made from the spoiled boil proved so very firm and strong that astonishment was the preme. New trials were ordered at once and samples distributed. Notwithstanding quotations of very high figures usually large and regular orders were received, so that it became necessary to make arrangements and regulations at once for an increased production of this new article. In this manner the making of this excellent product was started.

The excellent quality, however, soon caused excessive and spurious imitations at reduced rates. The process is continued to this date on the principle of the supposedly spoiled boil. The essential road to success consists in the boiling of the chipped pieces of wood in lengths of seven-eighths to 1½ inches into such an imperfect state of solution that the chips can be parted by the hands only by pulling the finger nails.

For making the best sheet of kraft paper it is required that the fibre should not be cut into short parts and bruised, and thus unnecessarily weakened. To that end the fibre preserving kollergang renders the best service and has no equal.

reserves the fibres in their most delicate lengths and separates them without crushing and destroying their tensile strength. Frequently over fifty of these machines are running in one mill. Attempts are made of late to replace the old results of the koller-gang by installing beaters with granite stone rolls, also beaters, with stone and bronze rolls in one trough, and finally by applying the modern disfibring and kneading machines—all for the sake of saving time and labor at the expense of the paper's strength.

In the boiling process the cheaper sulphate lye is now used for substituting the soda lye. The coloring of this strong wrapping paper, or sealing paper, as the English call it, is generally performed by the method of boiling with some additions of brown earth colors or with black, iron vitriol and aniline. Details of the special manufacturing process are generally kept strictly secret.

The author of the foregoing remarks says: "After having formerly described the process of making Swedish Kraft-paper, I wish to express myself herewith of Germany Kraft-paper.

After making Swedish Kraft-paper of above 7,000 m. tearing length, I succeeded in making kraft-paper in Germany of 12,000 m. I distinguished four kinds: First, Adansonian paper; second, manilla; third, rope; fourth, sulphite manilla.

First—Adansonian paper, I made in the following manner: The bark was cut on a thrag cutter and boiled with 5 per cent. of caustic soda under 2 atmospheres of pressure for twelve hours. The beating was performed on a hollander provided with a grooved stone in place of a bed plate, and having a roller supplied with broad bronze knives. The grinding was continued during four hours, allowing an open space between roller blades and bed stone—continuing for one hour after lowering the roll.

The knot catcher plates had wide openings. The stuff was well shaken on the wire for the purpose of producing a good felting quality. Two dandy rolls

were placed between first and second, and second and third suction boxes. The paper was made in a slow rim and was well dried to prevent wrinkles. Since the paper had been made of a brown color, according to Swedish custom, the impurities in the sheet that could not be eliminated by washing were scarcely observable. The loss of material, however, amounted to about 50 per cent., and the cost of raw stock being 18 marks per 100 kilos, the enterprise proved too expensive, and the paper could only be applied for certain specialities requiring extra strength.

"Second—Manilla Kraft-papier, made of manilla rope shortened on the cutter and by hand, prepared as usual with a strong soda lye and by prolonged boiling under five atmospheres of pressure. The half-stuff was well washed and beaten with dull knives, requiring over 12 hours. The work on the paper machine was performed like that for making the Adansonian stuff, but the wire was raised higher near the lower coucher for the purpose of obtaining increased firmness in the cross direction. This sort of paper should not leave the machine in a very dry condition.

"Third—Kraft-papier of hemp and linen fibres is mostly produced from spinning waste, cordage, sail cloth or coarse cotton drilling. An addition of some sulphite fibre produces a good feel. The boiling requires 5-6 atmospheres pressure, and in case of tar being present in the rope the alkaline must be supplied in the required strength. Boiling time and strength of lye depend upon the nature of raw materials. The dark violet shade is preferably brightened by white fibres; a long cotton fibre is very desirable; the same is added shortly before emptying the beater. Good washing and careful beating with knives of medium thickness with rounded off edges have to be performed according to requirement.

"Fourth—The German Kraft-papier, made of 50 per cent. sulphite, 30 per cent. manilla and 10 per cent. of cotton, would equal the tearing quality of 7,000 m. of the Swedish paper. In both cases the

quality or strength depends upon the imparting of a certain weak solution to the boiled stuff. The boiling is performed as usual in the Mitscherlich process by indirect steam. After discharging the lye of the first boil, the second addition to the boiler consists of pure water in place of lye, and the boiling is continued under two to three atmospheres of pressure. After a few hours the boiler can be emptied. The discharge shows a kind of brownish yellow sulphate. The manilla stuff must be prepared as half stuff, so that the same may be finished in the beater by the time when the previously prepared half stuff is ready for being discharged. In place of manilla a good class of spinning waste may be used. I have also obtained good results by admixing waste branches of wood as they were rejected from a sulphite boil, but these pieces must be well crushed in the kollergang or beater, and, finally, they have to be refined. The well refined stuff is run into stuff boxes, while the coarser parts of fibres that have been retained on the sorting table are beaten

again until they are in a condition to be admitted in the stuff box or beater.

"Practical experience must teach the essential knowledge of the boiling process, which differs according to the condition of the raw stock and here, the rule of a good cook prevails, the operator must be able to concoct from cheap material a highly satisfactory preparation."



—D. H. Ross, Canadian commercial agent at Melbourne reports that the shipments of Canadian news paper have been coming forward this year to Australian ports, and he finds that the country is giving satisfaction to the proprietors of the principal daily and weekly papers in Melbourne. He saw specifications of some 3,800 tons of Canadian paper which was shipped at New York for Australian and New Zealand ports since January last. Of that total nearly 400 tons was recently lost in the wreck of the steamship "Oakburn," on the South African coast.

AMBURSEN HYDRAULIC CONSTRUCTION CO.

OF CANADA, LIMITED,

Coristine Building = Montreal.



READY FOR BUSINESS

Concrete Steel Dam

OF THE
MISSISQUOI PULP CO
Sheldon Springs, Vt.

Mid-channel, height 40 feet.

Total length 270 feet (only 15 feet shows in the picture, the remainder being concealed to the left).

Dam specially designed to withstand heavy ice gorges.

Factors of safety are calculated for a 12-foot flood.

Associated with the Ambursen Hydraulic Construction Co. of Boston, Mass.

RAW MATERIALS FOR PULP AND PAPER.

The great consumption of paper has brought the question of raw materials to the front, and it is not astonishing that researches and experiments have been made during the last decade in order to increase the list of available materials. The vegetable kingdom abounds in substances capable of being converted into pulps and papers. The great question is to ascertain whether a given material can be worked to advantage, whether the yield and the expense of production will permit of its employment.

Those who have been occupied with researches on the subject have not failed to perceive that the fibres of cellulose derived from different graminous plants exhibit a certain resemblance in form and appearance.

The processes employed for obtaining pure cellulose from straw, esparto and gramineous plants do not differ much, except in the quantity of chemical substances and the duration of the boiling, which vary according to the kind of fibres.

Logically, says "Papier Zeitung," papers made with this pulp should possess the same properties. Now, the different vegetable matters exercise a certain influence on the quality of the paper according to the use to which it is to be employed.

Cellulose furnished by certain kinds of wood, that having large leaves, for example, has great similarity with that proceeding from gramineous plants, but yet papers which are made from this cellulose present different characteristics.

Fibres suitable for the manufacture of paper which can be derived from turf resemble those of straw, if examined under the microscope, and yet they do not possess the same resistive power.

As a raw material, straw is the most common. Meadow hay is superior, but this is used for forage, it is too dear.

Other grass-bearing plants found in the meadows furnish an excellent cellulose, but they are often mixed with tares when gathered, and also contain bits of wood from small broken branches and other foreign objects, which are soluble with difficulty and render necessary cleaning, sorting and preparation, involving too much expense.

In Germany wood sedge is consumed on a large scale. This plant reaches the height of a metre and a half, and is found in the eastern section and neighboring countries. The Belgian paper makers also import large quantities. Formerly this plant was not too expensive, but since the consumption has reached considerable dimensions the price has risen, but it is still 10 to 20 per cent. cheaper than straw. The stem is also freer from knots and, therefore, presents advantages to the manufacturer of cellulose. It is true that the lye ought to be 10 per cent. stronger than for straw, but the yield in fibre is from 3 to 5 per cent higher, and the preparation is also easier, because the small number of knots are completely dissolved. If greater care were taken in gathering, there would be need of less lye and bleaching substances, and at the same time the fibre would be in better condition. For a lighter weight it is customary to leave the plant in the field until the first frost, and to cut only when it is quite mature. This is an error, for the incrustations and constituent parts of the plants become, on account of their hardening, less soluble. The cellulose is also harder and often exhibits traces of its exposure to the weather. Besides, the strong lye necessary for the solution of the incrustated substances damages the fibres.

In general, plants designed for the manufacture of paper should be harvested before the stem is fully mature, which is not an easy matter when the grain is to be utilised. That is the case in the culture of hemp and flax. For these it is necessary to wait until the plant is completely mature.

This explains the failure of obtaining,

notwithstanding many efforts, a good cellulose from flax straw. The gathering of the seed is the principal object, and the plant remains in the field too long a time to furnish good material for the production of cellulose. Also, as the straw hardens too much, too energetic lyes and bleaching methods are made use of, and the result is often unfortunate.

Experience of this kind brings us to the conclusion that, while it is an inevitable necessity to wait for the harvesting of gramineous plants where other uses are the most important, in all cases those that are gathered for the production of cellulose primarily should be cut as early as possible, provided the plant is afterwards dried in the sun in order to prevent heating and fermentation.

The Florentine makers of straw hats employ the upper part of the stem for fine qualities, on account of its great elasticity and flexibility. This should also be the case in the production of cellulose, the upper portion requiring less lye and bleaching substances. The upper and lower portions of straw or other gramineous plants should be worked separately.

For the manufacture of fine paper rye straw beaten by hand and laid flat is generally made use of. This allows of more readily removing tares and other foreign substances. For packing papers and cardboard any straw can be employed.

When alfa or esparto is purchased, attention should be given to the appearance and properties of the stems. If they are greyish yellow and break when bent, they are of bad quality. Such a material requires more chemical substances and yields fibres of inferior quality. The alfa should not be green, for the cellulose is not yet formed, and in any case it is not ripe. Its true color is greyish yellow. Attention should also be paid to the presence of moisture on opening several bales, but if the alfa is moist it cannot be used.

Among large-leaved woods useful for the production of cellulose, poplar and

aspen are the most often employed. These trees should be straight, without knots, and never decayed. With selective wood there is an enormous and large quantities of chemical substances are needed, the fibres are and the paper soft.

Much has been said of the value of turf. Experience has demonstrated that neither alone or in combination with other raw materials does it present any advantage.

Plants consist not only of fibre cellulose suitable for the manufacture of paper, but of other cellulosic substances special to each plant. These are destroyed by boiling and bleaching, disappear during the manufacture, and more thoroughly the stronger the conditions of boiling, bleaching, &c. the material thus becomes cleaner and whiter; the residue serves as substance for loading, and the specialist charged with examining the composition of papers may, according to their quality and appearance, determine the composition of these special fibres in a given paper.

The length, thickness and extremities of the fibres exhibit certain peculiarities by which the plant to which these belong may be recognized. Still, length, thickness and form of the extremities change, according as the fibres have been derived from the upper or lower portion of the plant. Thus a mixture of the fibres of cellulose straw, esparto and large-leaved wood is difficult to determine exactly, according to the form of the fibres, the quantities of each of these constituents entering into the preparation. Although the specialist knows that the fibres of esparto are in general finer and smoother than those of straw, and fibres of large-leaved wood are stronger and rougher, and their extremities have also a different appearance, it happens that each of these three kinds of fibres have the same form, so that an examination can very readily be committed to the examination. Usually the determination of the constituent parts of a mixture of fibres is determined by the oration, with the aid of iodine or

ride and other chemical substances. even with these means, errors may occur, for the chemical substances produce irregular coloration, when the peats are subjected to boiling or to more or less energetic bleaching.



QUICK PROCESS FOR CONVERTING PEAT INTO PAPER.

The Pilgrim Paper Company, of Port Huron, Mich., claim that they can turn peat into paper in two hours. This is the first of the mills erected several years ago for the manufacture of peat briquettes.

The process is short. Whereas in the manufacture of paper from straw ten to fifteen hours in the digesters is necessary to break down the fibre of the straw, in this new process the digesting is done mechanically, without the use of heat or chemicals, and is complete in less than an hour. The factory being built right on the peat bog, there is no need to pay on raw material. The finished product is said to be superior to that made from straw or wood pulp in several ways. The passing of the peat pulp over the hot rolls in the process of manufacture brings to the surface of the paper the natural oil of the peat, and tends to make the surface of the finished product waterproof and impervious. There is a lacking of the defects which straw or wood pulp paper possesses. The peat board is also exceedingly tough.

Coming to these things the manufacture of the product is much less expensive than strawboard. Whereas the cost of strawboard is over \$20 per ton to produce, peat cardboard is being turned out for about \$8.

The great difficulty in the attempts to manufacture fuel was to get rid of the water contained in it as it is dug from the bog. In the making of paper this does not have to be first dried out. In fact, more water has to be mixed with the pulp during the manufacturing process, and only when the pulp is fed into the paper machine is the moisture ex-

pelled, by pressure and the heat of the rolls, as it is from straw pulp.

The plant at Capac, which is as yet the only one in operation in the world, although four others are in course of construction in different parts of the United States, started operations last January. For the past two months it has been working twenty-four hours a day, six days a week, and turning out thirty tons of the finished strawboard daily.

All that can be turned out at present is being used in the manufacture of cartons by the makers of food products, breakfast foods and the like, but the uses are many to which it can be put, on account of its strength and toughness.



ENGLISH INTEREST IN CANADA.

We are pleased to note in connection with recent engineering developments in the paper trade, the visit to this country of Mr. Austen, the Liverpool manager of Messrs. George Scott & Son, of London, manufacturing chemical engineers.

Mr. Austen is visiting a number of places in Canada and the United States, in connection with contemplated installations at the various plants and processes he represents. This firm have appointed as their Canadian representative Mr. J. A. DeCew, Chemical Engineer, Montreal, and it may be of interest to the paper trade to learn that they are prepared to design, build and erect complete plants for the manufacture of soda pulp. We learn that they have a special recovery system for this process as well as a short method for digesting the wood, both of which are the result of the latest researches in this field.

It is worthy of note the active part these English engineers are now taking in the quality of our chemical industries, and we hopefully look forward to the not far distant future when this country, through the adoption of the most approved methods, will be able to compete in paper manufacturing with the world.

CANADIAN PAPER IN ENGLAND.

J. B. Jackson, Canadian commercial agent in Leeds, Eng., writes that a great field exists in the north of England for Canadian papers, as in Yorkshire alone there are over 100 paper merchants and manufacturers. These do not include the numerous newspapers, who make the best customers. He says the English manufacturer and buyer will not divulge their trade terms. Those having catalogues do not let them into the hands of their competitors. If these catalogues are sent out to the public they do not show the discount the manufacturer gives to the buyer. Canadian mills can get the trade only by regular canvassing of the English buyer. Mr. Jackson reports that owing to the keen competition which exists in paper circles in England, it is practically impossible to conduct a direct trade in paper from Canada. England is the home of the middleman for the present, and for the purpose of introducing a new commodity an English agent is a vital necessity. English paper manufacturers will not permit an outside competitor to enter without a struggle. The fact was made quite apparent recently when a large United States paper company had to withdraw, after having tried to flood the British market with American-made paper. The product of Canadian paper mills is much in excess of home consumption, he remarks.



THE MARKETS.

Toronto, Nov. 17th, 1906.

The Canadian sulphite men got together two weeks ago and advanced prices to \$1.90, the prevailing quotations at that time being \$1.75 to \$1.90. They were so unsettled that it would have been difficult to fix them very definitely. This is following on the lines of the United States manufacturers last week. Mechanical is 23 to 24 according to the circumstances surrounding delivery, etc. Ground-wood is very scarce.

The pulp mill situation was eased by the rainfalls last month, but in some cases the precipitation came too late to be of full benefit. Much of the rain fell in the form of local showers, while of advantage in individual cases, scarcely affected the large mills. At the same time, paper manufacturers who have been holding off from buying, have come into the market for pulp, with the result that the situation is buoyant.

The situation in the United States has been relieved by the settlement of the strike at the Burgess Sulphite Company's mills at Berlin, N. H. The sulphite market shows bright prospects, prices being now on a more satisfactory footing. The demand for paper is also better.

The manufacturers of paper have sent out notices advancing prices on all grades of white bags 10 to 15 per cent.

The soda fibre manufacturers came together at their quarterly meeting a few days ago to fix a price on soda pulp. Finally it was decided to be inadvisable to make any change and the present figures of \$2.15 per hundred will continue.



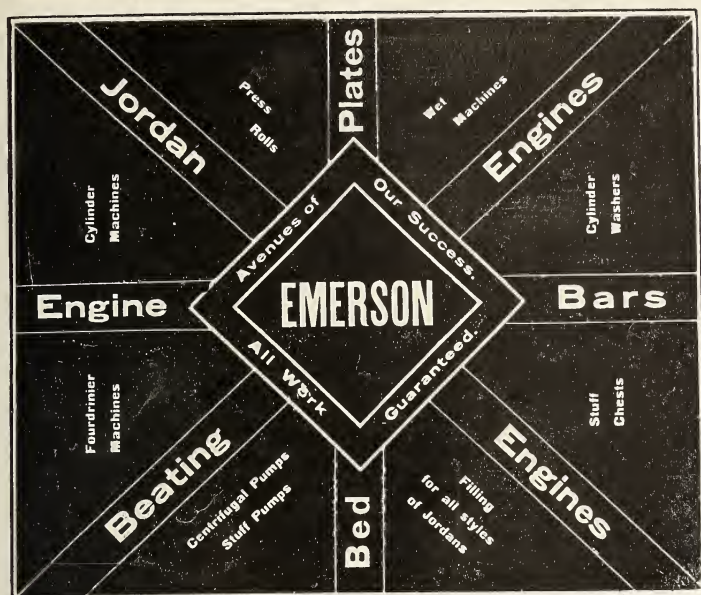
BRITISH MARKETS.

For mechanical wood pulps the demand at the moment is not large. For immediate delivery there is practically no inquiry. For future delivery British paper makers recognize there may be an advance, but they do not feel justified in meeting it at present.

The demand is very good for bleaching kinds of sulphite. Strong sulphites are scarce, and prices are high.

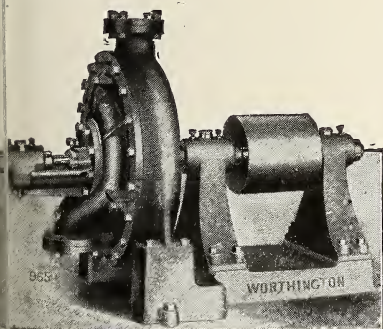
The chemical market is steady at the following quotations: Ammonia 40 to 58 per cent. stands at £4 10s. bleaching powder (soft wood), £4 15s. to 16s. caustic soda, 76-77 per cent., £10 6d.; soda crystals, £3 2s. 6d.; salt 32s. 6d.; and recovered sulphur, £5

EMERSON MFG. CO.



LAWRENCE, = = = MASS. F

The John McDougall Caledonian Iron Works, Limited MONTREAL, P.Q.



Worthington Turbine Fire Pump, working pressure 160 lbs.

BOILERS :

Return Tubular " McDougall "
Water Tube, Lancashire, etc.

TANKS :

Water Tanks, Penstocks, Steel
Riveted Pipe, etc.

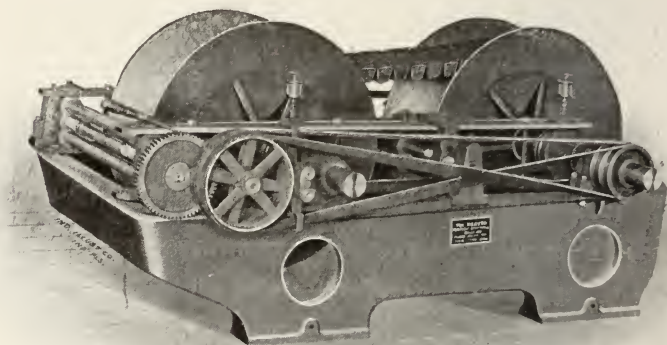
MACHINERY :

Complete Power Plants design-
ed and installed.

Sole Manufacturers in Canada for Worthington Turbine Pumps.
Doble " Impulse Water Wheels and New York Filter Co.'s Pressure
filter.

WAIT!

Don't Turn Another Page
Here It Is



The Much Talked of "THE REEVES" Variable Speed Transmission

The one practical device for regulating the speed of the paper machine.

It everlastingly gets away from the nerve racking old true cone, in whatever form it seeks to disguise itself.

There is absolutely no shifting of belt.

It is made in sizes to drive anything from a winder to a 140" Fourdrinier.

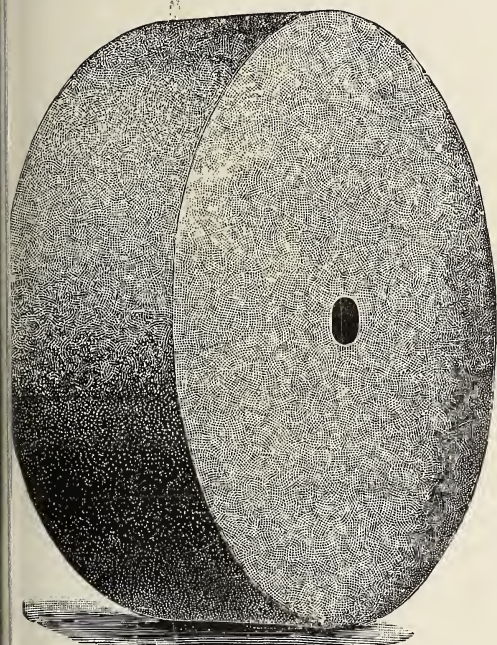
Any speed within its extreme range of variation may be instantly secured and the changes effected without breaking or stopping the paper sheet.

Recommended and adopted by the largest and most progressive paper mills in America and Europe.

Send for Paper Machinery Catalogue To-day

REEVES PULLEY COMPANY,
COLUMBUS, INDIANA, U.S.A.

German Grindstones



Wood
Grindstones,
Wood Pulp
Refiner
Stones,
Edge-Runners
French
Millstones

Artificial Emery and Quarzstones

Stones of all kinds used in Wood Pulp and Paper
Manufactories.

Six Own Quarries at
Wehlen-Zeichen and Langenhennersdorf (Saxony)
Neuland and Goldbach (Silesia) Hoffnung (Bohemia).

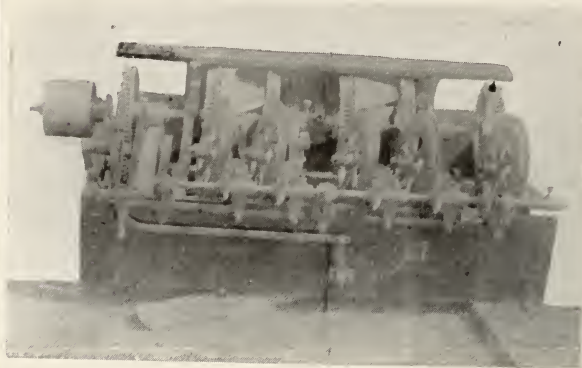
GEBRÜDER ISRAEL

PIRNA-ON-THE-ELBE (SAXONY)

Oldest Factory for Wood Grindstones in Germany.

Established 1866.

The Moreau Pulpwood Barker



Capacity, 3 Cords per hour with 2 men and 6 horse power

It can be run the year round in dry, green or frozen wood.

The Real Machine which takes only 16 to 18 per cent discount of the wood and saves money.

WRITE TO-DAY FOR FURTHER PARTICULARS.

The Moreau Barking Machine Co., Ltd.

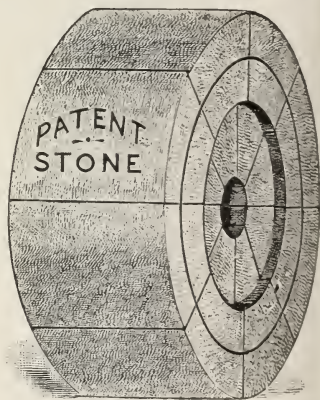
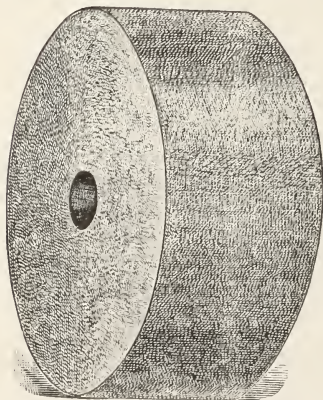
C. MANSEAU, Selling Agent for U.S. and Canada, Mitchell, Quebec
RELIABLE AGENTS WANTED.

PULP STONES

ENGLISH, GERMAN and SCANDINAVIAN

ALSO THE

PATENT UNIVERSAL



the construction of which gives to it advantages not found in the one piece stone

Let us tell you about them

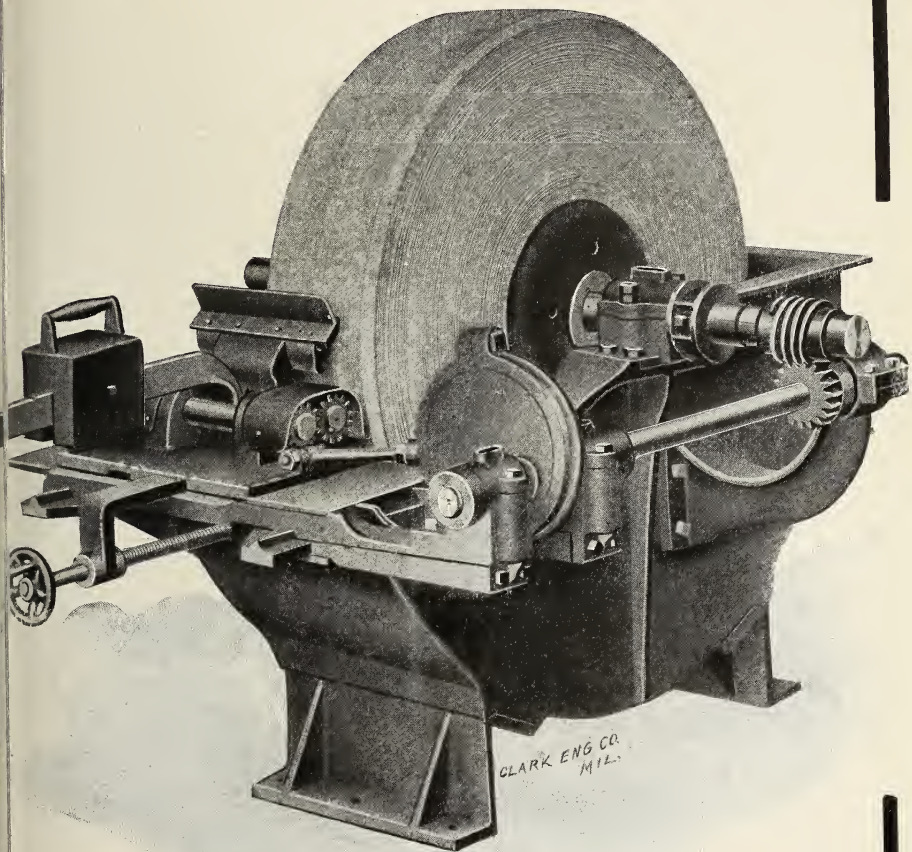
JEAN FREESE

132 NASSAU ST., NEW YORK, U.S.

There would appear to be an opportunity for Canada to do a little exporting trade to the United States in pulp boards, but manufacturers on the other

side who have made enquiries here, come to the conclusion to take the matter up abroad, on the score of small cost there.

Valley Iron Works Co., Paper & Pulp Mill Machinery Specialists



AUTOMATIC BARKER KNIFE GRINDER.

This machine has a capacity of 150 perfectly ground knives per day, and does not draw the temper of the knife—therefore effects a saving in your knife account. It is the only machine of its kind on the market.

WRITE US FOR PRICES.

Valley Iron Works Co., Appleton, Wis.,
U. S. A.

Holyoke Steam Boiler Works,

INCORPORATED

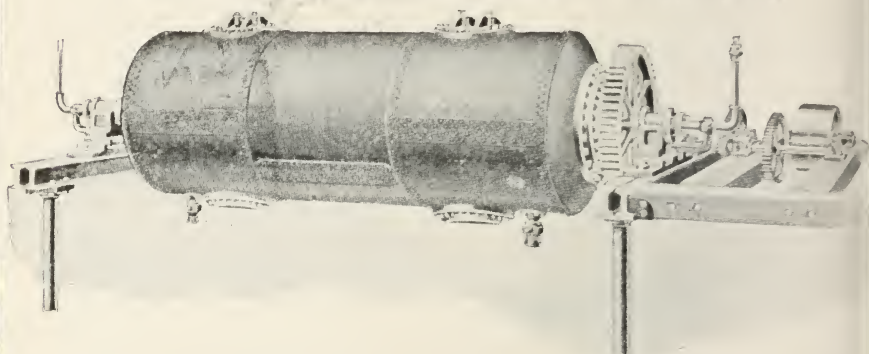
HOLYOKE, MASS., U.S.A.

T. H. SEARS, Mgr.

MANUFACTURERS OF

EXTENSION FURNACES, HIGH PRESSURE HORIZONTAL TUBULAR BOILERS, IMPROVED DIGESTER, IMPROVED VERTICAL BOILERS.

Improved Rotary Bleach Boilers.



This cut illustrates our improved rotary bleach boiler the result of more than 30 years careful study and experience. The most complete of its kind in the world. Over 500 in use in Canada, United States and Mexico.

We are specialists in boilers and furnaces for pulp and paper mills. Let us know your requirements.

T. J. MARSHALL & CO.

The OLDEST & LARGEST
MANUFACTURERS of

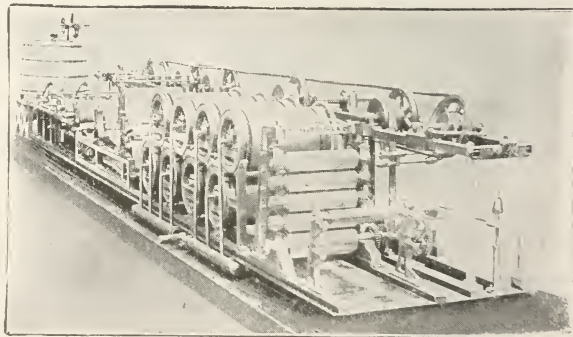
DANDY ROLLS

IN THE
WORLD

BANK NOTE MOULDS, DECKLE STRAPS, CUTTING MACHINES, ANIMAL SIZING MACHINES, PATENT DANDY ROLL CARRIAGES, PAPER TESTING MACHINES, PAPER SCALES, &c.

Established 1792.

By Special Appointment to
H. M. Stationery Office
Telegraphic Address:
"Dancing", London.



By Special Appointment to
H. M. India Office

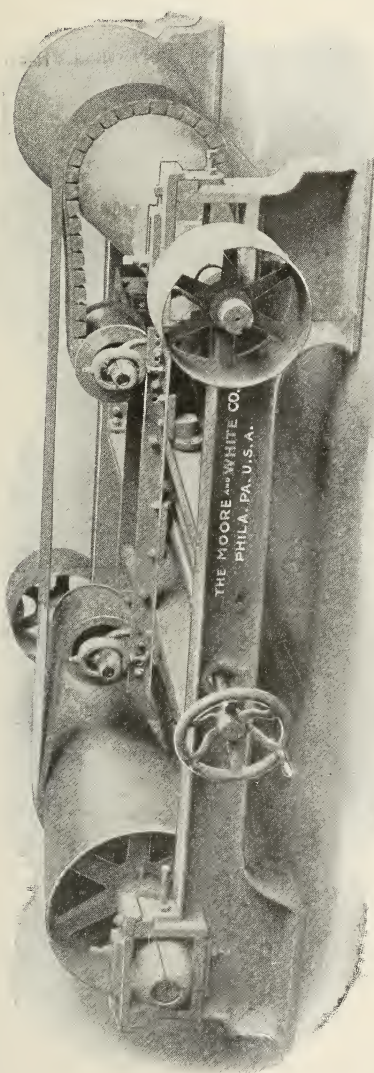
FRONT PERSPECTIVE.

Manufacturers of the Smallest Paper-making Machine in the World

Specially constructed for Mill Testings before Making the bulk, the same results being obtained as from a wide Fourdrinier Machine. Also for Technical Instruction.

T. J. MARSHALL & CO., 51, FETTER LANE, LONDON, E.C. 3.
CAMPBELL WORKS, NEWINGTON, LONDON, S.E. 1.

"Moore & White" SPEED CHANGE for Paper Machines.



WIDE BELT. PERFECT CONTACT.

ANY DESIRED RATIO OF CHANGE.

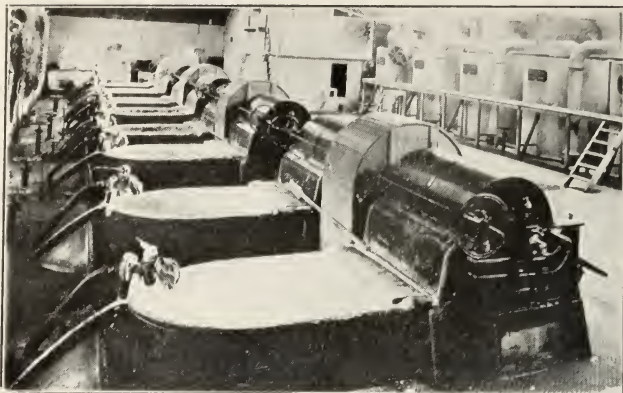
Absolutely No End Thrust or Tendency Sidewise of
Transformers or Driving Belt.

The Moore & White Co.

PHILADELPHIA, U. S. A.
BUILDERS OF PAPER MAKING
MACHINERY

Masson, Scott & Co., Limited

Paper-Makers' Engineers



SPECIALITIES

Patent Machinery
for Bleaching and
Beating.

Strainer Plates.
Closing Strainer
Plates.

Sole British
Agents for

Robert Dietrich's
Kneader for Pulp-
ing Paper Stock.

MASSON, SCOTT & CO., LIMITED
CORONATION WHARF, FULHAM,
LONDON, S.W., = = ENGLAND.

500 Twelve-Foot Logs per Hour

Cut into two-foot lengths ready for the barker. That is the ordinary capacity of
**Perron, Gagnon & Co.'s Automatic Pulp Wood
Sawing Machine.**

(Patented in United States and Canada, 1900 and 1906.)

One man alone operating the machine can cut 5,000 logs every ten hours without much exertion. Logs automatically conveyed to the saws, and from the saws to the barker.

A machine installed in the large No. 2 mill of the Chicoutimi Pulp Co. and operating 10 hours per day

Supplies Wood to Twenty Grinders Working 24 Consecutive Hours.

On account of its many advantages, and the fact that it requires only one man to operate, our machine has replaced expensive systems requiring the services of 18 to 20 men.

**ECONOMISE IN YOUR WAGES BILLS, INCREASE
YOUR PRODUCTION, AND SWELL YOUR PROFITS.**

This can only be done in the pulp mill by the use of our up-to-date sawing system. Write to-day for catalogue and particulars.

PERRON, GAGNON & CO.,
Chicoutimi, Quebec,

Patentees and Sole Manufacturers.



BELTING.

Contractors to

The Admiralty, War Office, India Office, and the leading Railway Companies of Great Britain.



BELTING.

**IRWELL AND EASTERN
RUBBER CO., Limited,**

Manufacturers of

"LANCO"

BALATA BELTING

This is a genuine article, and is **GUARANTEED** to be equal in every respect to the best **Balata Belting** at present manufactured.

Nothing better in this class of Belting can be had, and it is specially recommended for heavy and difficult drives. Everything in connection with this Belting is of the very best quality.

IT STRETCHES LESS THAN ANY OTHER BALATA BELTING.
and is without doubt the most reliable of its kind.

Samples and Quotations may be had from our Works.

ORDSALL LANE, SALFORD, MANCHESTER.

Telegrams—"PARA, MANCHESTER" A.B.C. Code 5th Edition

DILLON MACHINE

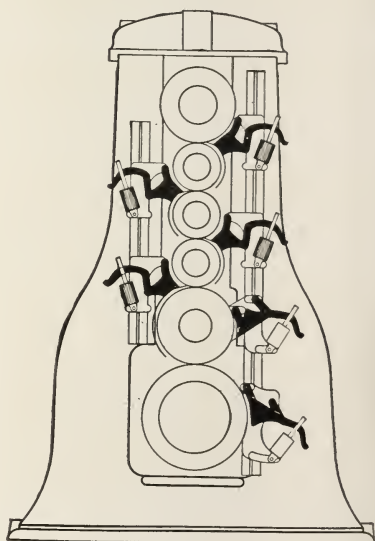
COMPANY

BUILDERS OF

PAPER MILL MACHINERY

Beating and Washing Engines,
No. 1 and No. 2 Refining Engines,
Stuff Pumps, Single, Double and
Triple, all sizes, fitted with the
Dillon Patent Valve Seating,
Wet Machines, Stuff Chests,
Horizontal and Vertical, all sizes,
Single and Double Paper Cutters,
Backstands, Dillon Patent Calen-
der Doctors and Feeds, Jordan
Filling, Roll Bars, Bed Plates
and Cutter Knives.

Our Patent Calender Doctors and Feeds
are made in Canada.



DILLON DOCTORS
AND
FEEDS

DILLON MACHINE CO.
LAWRENCE MASS.

LAWRENCE, MASS., U.S.A.

MIRAMICHI PULP & PAPER CO., Limited

CHATHAM, N. B.

Manufacturers of High Grade Easy Bleaching

Sulphite Pulp

Suitable for Writing and Book Papers

ESTABLISHED 1878

George E. Hanson

Expert Manufacturer of High-Class

FELTS

FOR SULPHITE AND GROUND WOOD PULP MILLS

Only best of stock is used in making these goods. I am supplying some of the best Mills in Canada, among them being, The E. B. Eddy Co., Hull; J. R. Booth, Ottawa; James Maclaren Co., Buckingham, Que.; Nova Scotia Pulp Co., N.S.; Lake Megantic Pulp Co., Lake Megantic, Que.; A. J. Morrill, Nicolet Falls, and others.

A trial order would be appreciated.

HULL WOOLEN MILLS, HULL, P.Q.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,

Ejector Vacuum Pumps — Bertrams Limited — Patent.

Wahlstrom's Patent Refiner—Canadian Patent 89 368.

DR. C. WURSTER'S Patented Pulping Engines and Kneaders

OVER 200 SOLD

FOR PULPING-UP

Dry Wood Pulp, Machine "Broke," Old Paper Stock,
Waste Papers.

MADE IN THREE SIZES TO PULP THREE, SIX
AND NINE TONS DRY WOOD PULP IN
TWENTY-FOUR HOURS. — FIVE, EIGHT AND
TWELVE HORSE POWER REQUIRED.

£125, £150 and £200 c.i.f. U.K. Ports.

Beaters and Edge Runners can be filled in from one to two minutes if the pulp is first disintegrated by one of the Wurster Engines, while the output is larger with the same power. These Engines do four times the work of stones, and neither shorten, affect, crease, or wet the fibre in any way, nor change the color or the sizing. They can also be used for Kneading Clay and other Fillers, and Bleaching Powder.

For full particulars apply to

DR. C. WURSTER, 29 Abbey Road, St. John's Wood, LONDON, N. W.
ENGLAND.

PAPER STOCK MARKET REPORT.

Montreal, Nov. 19, 1906.

The dullness in the Paper Stock Market during the summer months is gradually giving way to a more active demand in nearly all lines of paper making stock.

The most active demand is for waste papers, there being a fair inquiry for all grades.

Cotton rags are being inquired for chiefly by United States mills, and several small shipments have gone in that direction. Manilla rope keeps about steady. Bagging is a little firmer.

Prices of foreign rags keep high, and a general way are above values here. Quotations are as follows:—

o. 1 white shirt cuttings.	\$5.50 to \$6.00
light print cuttings	4.00 to 4.50
unbleached cuttings	4.75 to 5.25
white shoe clips	4.50 to 5.00
colored shoe clips	3.25 to 3.75
domestic white rags	2.25 to 2.50
blues and thirds	1.25 to 1.40
roofing Stock .....	.90 to 1.10
manilla rope	4.00 to 4.25
waste papers .....	.35 to .40
bagging	1.00 to 1.10

Wanted.

Tour boss for 12 grinder ground wood mill ; must be first class pulp maker and have good knowledge of machinery Good wages for right man. Address, "M.T.H.," care Pulp and Paper Magazine.

Situation Wanted.

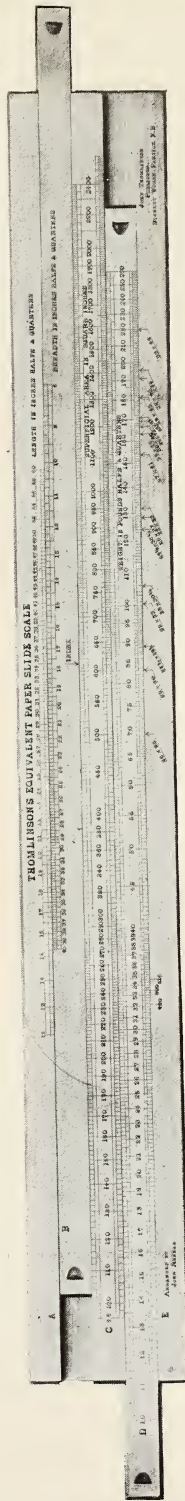
A French civil engineer and graduate in science, who has had three years' practice, two of which have been in the manufacture of food pulp and paper, is open for an engagement with a Canadian paper or pulp mill. A modest salary will be asked to start. Good references. Address, B.C., c/o Pulp and Paper Magazine, 79-80 Confederation Life Building, Toronto, Canada.

FOR SALE

Two Second hand Jordan Engines. In good condition. Taken out to replace with larger. For particulars apply Kinleith Paper Co. Ltd., St. Catharines, Ont.

YOU NEED IT

For calculating the relative weights of different sizes of paper and similar calculations employing "the rule of three."



Write now for booklet.
Price in Waterproof Cardboard, \$3.50 each.
Price in Extra Finished Boxwood, \$15.00 each.
RITCHIE & RAMSAY, Limited, - 84 WELLINGTON STREET WEST, TORONTO, CANADA.

Cable Address,—"Kaolin, Manchester." A.B.C. Codes, 4th & 5th Editions

CHINA CLAY CO.

JOHN WILLIAMSON, Manager.

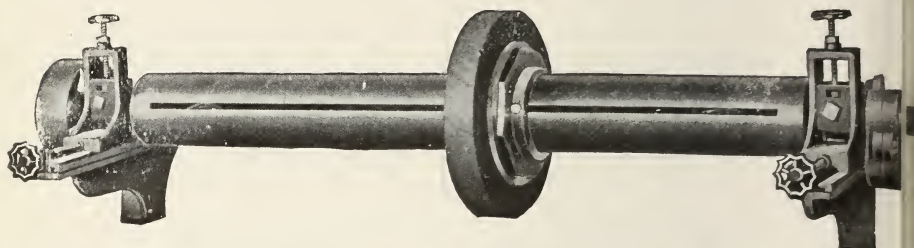
4 St. Annes's Square

MANCHESTER, ENG.

MINES—Ruddle, Bojea, Colchester, South Ninestones, Tronance, St. Auste,
Cornwall.

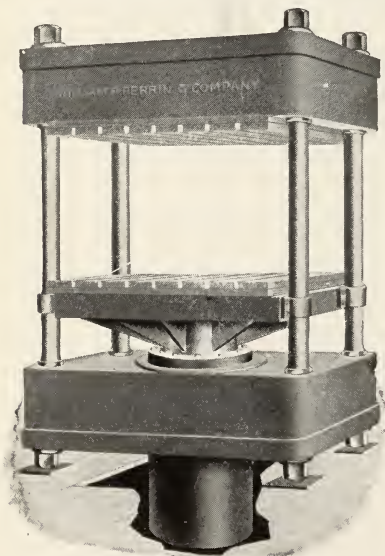
CONTRACTORS TO H.M. INDIAN GOVERNMENT

"The Roy Patent Calender Roll Grinder"



B. S. ROY & SON, - Worcester, Mass. U.S.A.

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders,
Pumps, Heaters.

F. H. DAVIS & CO.,

161 Devonshire St.,
BOSTON, - - MASS.

C. D'Oyley Mears & Co.,

PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
Wardrobe Chambers, Queen Victoria Street,
London, E. C.

THE RIORDON PAPER MILLS,

Limited.

Merritton and Hawkesbury, Ont.

Merritton Mill—Newspaper, Hanging
Paper, Wrapping Paper and Building
Paper and Sulphite Pulp.

Hawkesbury Mill—Sulphite Pulp.

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, 82 Beaver Street, New York.

Norwood Engineering Company,

FLORENCE, MASS., U.S.A.

Builders of the highest grade of Paper
Finishing Machinery, Rag Dusters, Belt
Power Elevators, etc. Contractors for Fil-
ter Plants of any size, Industrial or Munici-
pal, Gravity or Pressure system.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:

CHRISTIANIA (Norway)	..	Kirkegaden No. 20.
GOTHENBURG (Sweden)	..	Lilla Kyrkogatan No. 20.
MANCHESTER	.. ..	Guardian Buildings (opposite Exchange).
LONDON	.. .. .	77a Queen Victoria Street, E.C.
PARIS	.. .. .	Rue de Londres No. 29.
ANGOULEME (France)	..	43 Rue Louis Desbrandes.
LYONS	.. .. .	54 Cours Gambetta.
MILAN	.. .. .	24 Via Solferino
TOLOSA (Spain)	.. ..	18 Calle San Francisco.
NEW YORK	.. .. .	99 Nassau Street.
ST. PETERSBURG	.. ..	Little Podjascheskaja House, 4. Qu. 16.

Telegraphic Address:

"WERTHEIMO, HAMBURG."

BARKER,
CHIPPER,
PAPER-CUTTER

MACHINE KNIVES

Of Every Description.

The Peter Hay Knife Co., Limited, Calt, Ont.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.

DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.



REGISTERED.

JOHN KNIGHT & CO.,

CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents for the ... **L.G.V., W.F.,**  and other Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

THE UNITED WIRE WORKS LTD.

Edinburgh, Glasgow & Newcastle on Tyne.

FOURDRINIER WIRES CYLINDER WIRES

Wire Cloth all meshes, in Brass, Copper Bronze & Steel.

SOLE AGENTS FOR CANADA

ARTHUR P. TIPPET & CO., 8 Place Royale, MONTREAL.

Wires held in stock at Montreal for prompt delivery.

STUFF PUMP

This pump is made in three sizes, 5", 6" and 8".

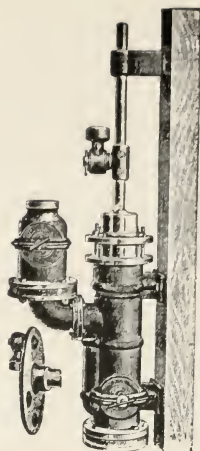
The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by

T. McOUAT & SON, Lachute, Que.



MAPLE LEAF
STITCHED COTTON DUCK
BELTING
DOMINION BELTING CO. LTD
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of

GRADED RAGS, PAPER STOCK
ROPE BAGGING, ETC.

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction Board
Mills at Sault au Recollet, P.Q.

ATTERBURY BROTHERS, Incorporated.

Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

PERFORATED SHEET METALS

IN BRASS, COPPER, STEEL, Etc.

All sizes of perforations and thickness of metals for all purposes

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

Cylinder and Fourdrinier Machines.

Tissue Paper Machines a Specialty.

BELOIT IRON WORKS

BELOIT, WIS., U. S. A.



REFUSE BURNERS

Our experience in this class of work has been extensive.

We are prepared to contract for Refuse Burners of any size.

We erect the steel shell complete, ready for the brick lining. Estimates cheerfully furnished. Correspondence invited.

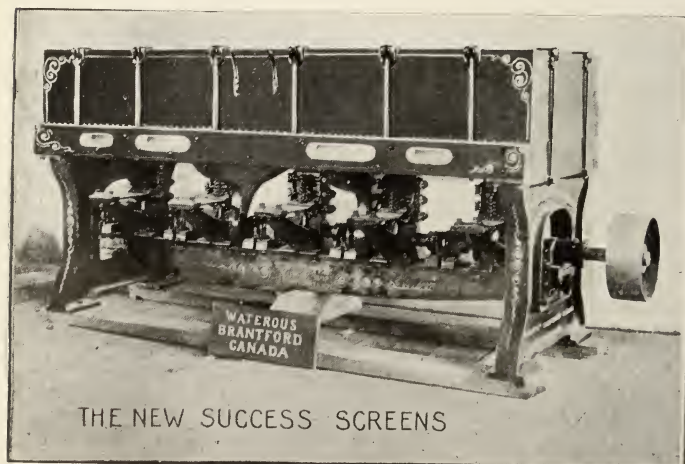
THE JENCKES MACHINE CO. Limited,

SALES OFFICES:
TORONTO ROSSLAND
HALIFAX VANCOUVER

EXECUTIVE OFFICE:
49 Lansdowne Ave., Sherbrooke, Que.

PLANTS:
St. Catharines, Ont.
Sherbrooke, Que.

We manufacture a full line of PULP MILL MACHINERY



We repair and
make over
Cylinder
Moulds.

Write for Special
Catalogs.

The Waterous Engine Works Co., Limited
BRANTFORD, - CANADA.

CHALK WHITE" COATED BOOK PAPER.

the best and whitest coated paper sold. — All regular sizes and weights in stock.

The Cover of this magazine is our Art Litho Cover, stocked in four sizes, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Windsor Mills, Que. = Montreal. = Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

J. S. YOUNG, = = Sole Agent for Canada.

14 Hospital Street, Montreal.

F

"TURBINE WATER WHEELS"

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from

S. MORGAN SMITH Co.,

YORK, PA., U. S. A.

REFERENCES:

Montreal Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company,	14,000 h.p.
Montreal Cotton Company,	7,000 h.p.
Sturgeon Falls Pulp Co.....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH

LONDON, England

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacture

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

JOSEPH H. WALLACE, C.E.

M. AM. SOC. C. E. M. CAN. SOC. C. E.

INDUSTRIAL ENGINEER.

TEMPLE COURT BUILDING, NEW YORK

CABLE ADDRESS "TRIPLEX," N.Y.

MANUFACTURING PLANTS AND POWER DEVELOPMENTS
REPORTS ON INDUSTRIAL PROPERTIES, APPRAISALS, ETC.

A. V. JAASTAD, M.E., CONSULTING STEAM ENGINEER.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland, - - - Montreal

PULP AND PAPER MAGAZINE

OF CANADA

VOL. 4. TORONTO, DECEMBER, 1906. NO. 12.

FEATURES OF THIS NUMBER.

British Machinery in Canada.

High Value of Canadian Pulp.

The New Tariff.

**Process of Manufacturing
Sulphite.**

Mill News.

Power for Paper Machines.

Established 1837

Incorporated 1867

RICE, BARTON & FALES

MACHINE & IRON CO.

CHARLES S. BARTON, Prest. & Treas.
GEORGE S. BARTON, Secretary.

WORCESTER, MASS.

BUILDERS OF

Modern Fast Running and Heavy Four-
drinier and Cylinder Machines for Making
Paper, and Drying Pulp.

- Double Drum Vertical Winders and Re-Winders.
- Upright and Revolving Reels.
- Large and Heavy Wet Machines.
- Revolving Cutters and Layboys.
- Hill Patent Diagonal Cutters, which can be equipped with
Slitting Arrangement, and Reeling Off Bars.
- Chilled Iron Calender Rolls.
- Screens and Screen Plates.
- Stuff, Suction and Fan Pumps.
- Patent Top and Double Edged Slitters.
- Pneumatic Re-Winders for Small Rolls.
- Additions and Changes made to Old Paper Machines
Greatly Increasing Speed and Capacity.

Makers of the Moore Patent Horizontal Revolving
Screen for Ground, Soda, and Sulphite Pulp.

Foreign Phosphorbronze Fourdrinier Wires,

*Sulphite Pulps, Paper Stock and Rags,
Bleached Straw Pulp, also China Clay.*

JEAN FREESE, Vanderbilt Building
132 Nassau Street, **NEW YORK.**

FOURDRINIER MACHINE WIRES CYLINDER COVERS

Unequalled for Strength, Smoothness and Long Life.

GEORGE CHRISTIE, LIMITED

Ladywell Wire Works, GLASGOW, SCOTLAND

Agent—**THOMAS L. PATON,** 30 St. Francois Xavier Street, Montreal, who
holds stock for immediate delivery.

EDWARD J. WELCH, Pres. | EMMONS CROCKER, Vice-Pres. | ARTHUR S. MORSE, Secy.
ADAMS CROCKER, Treas. and Managing Director. | HENRY W. S. DOWNS, Supt.

Union Screen Plate Company of Canada, Limited.

Factory, Lennoxville, Que., Offices: { Lennoxville, Que.
Fitchburg, Mass., U. S. A.

Screen Plates



The "Union" Bronze (best phosphorized cast metal) Plates
for Sulphite Mills. The Standard Rolled Brass Plates.

The "Union" Cast Metal Suction Plates.

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

We carry in stock a large supply of the different sizes of both metals and can fill large orders promptly.

Bentley & Jackson,

Limited

PAPER MAKERS' ENGINEERS,

BURY, near Manchester, England.

Telegraphic Address:

Calender - Bury.

Makers of

Complete Paper Making Plants for all Classes
of Paper,

High Class Fast Running News Machines,

Single Cylinder Paper Making Machines, with
Cylinders up to 12 feet Diameter,

And all other Accessory Machines used in the
Manufacture of Paper.

ESTIMATES ON APPLICATION.

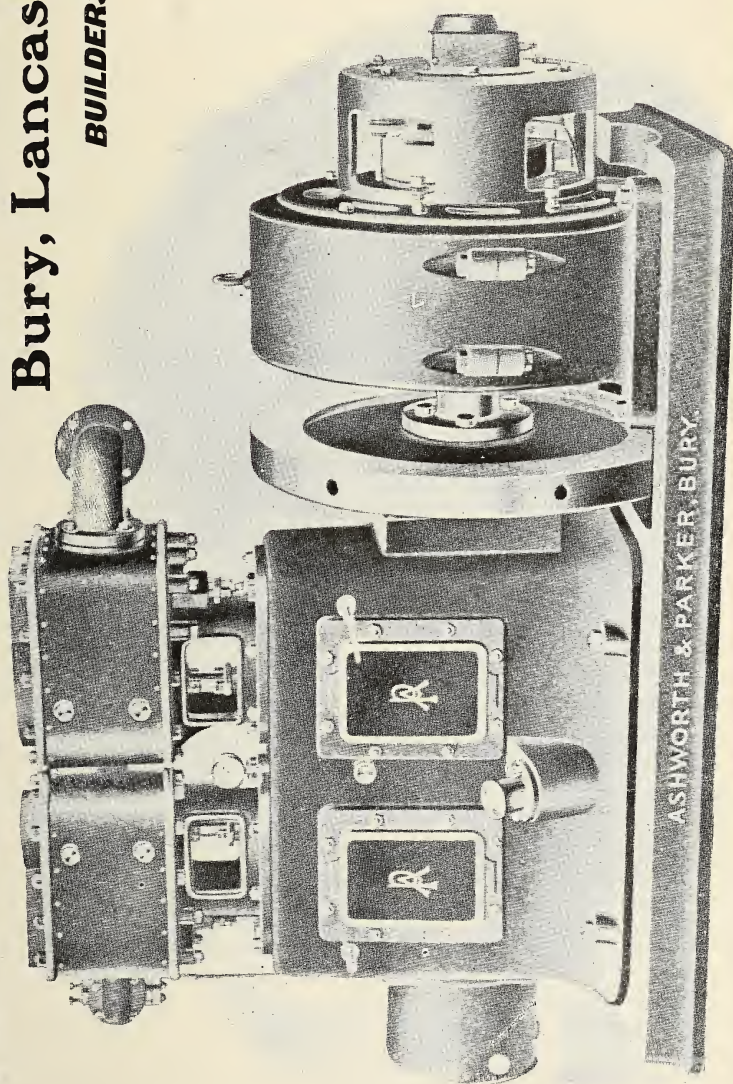
Cable Address "Kinetic," Bury.

Ashworth & Parker

Bury, Lancashire, Eng.

BUILDERS OF ...

**Forced
Lubricating
Engines,
Special Types
For Paper
Machine
Driving,
Electric
Generating
and
Centrifugal
Pumping.**



BERTRAMS, LIMITED

Papermakers'

Engineers

***St. Katherine's Works,
SCIENNES, EDINBURGH.***

The Newest and most Up-to-date Machinery for Papermakers,
embracing British, American and Continental Improvements.

C. H. JOHNSON & SONS, Ltd

WIRE WORKS, — ST. HENRY, — MONTREAL.

MANUFACTURERS OF

Fourdrinier Wires, Cylinder Wires,
Brass, Copper and Iron Wire Cloth, Dandy Roll

PORRITT BRO^R. & AUSTIN

Stubbins Vale Mills—RAMSBOTTOM—near Manchester, England.

Manufacturers of every description of

***Felts and Jackets for
Pulp and Paper Mills.***

Agents for Canada: C. H. JOHNSON & SONS, Ltd., ST. HENRY, MONTREAL

INDEX TO ADVERTISEMENTS.

Amhurst Hydraulic Construction Co.....	305	Horne, J. H., & Sons Co.....	10
Bartholomew & Barker	5	Hough, R.	60
Bedford Bros.	56	International Pulp Co.	9
Bicker & Co.	48	Irwell and Eastern Rubber Co.....	54
Bloitt Iron Works.....	57	Israel, Gebruder	41
Bentley & Jackson.....	4	Jenckes Machine Co., Limited	12 & 58
Bertram's, Limited	6	Johnson & Sons, Limited, C. H.....	6
Black-Clawson Co., The	7	Klipstein & Co., A.....	11
Bredt & Co., F.	10	Knight & Co., John.....	55
Brunner, Mond & Co., Limited	60	Lea & Coffin, and H. S. Ferguson	9
Canada Paper Co.....	59	Little, Arthur D.....	9
Canadian Rubber Co. of Montreal.....	8	Marshall, T. J. & Co.....	44
Canimicuti Pulp Co.....	48	Masson, Scott & Co., Limited	46
Castle, Gottheil & Overton.....	9	McDougall Caledonian Iron Works, The	
China Clay Co.....	52	John	37
Christie, J.	60	McQuat & Son, T.....	56
Christie, Limited, George	3	Mears, D'Oyley & Co.....	53
Dean & Main	9	Miramichi Pulp & Paper Co.....	49
Devis & Co., F. H.	52	Moreau Barking Machine Co.....	24
DeCew, J. A.....	9	Moore & White Co	45
Dillon Machine Co.....	307	Norwood Engineering Co.	53
Dominion Belting Co.	56	Paton, Thomas L	3
Dutton & Brownell.....	9	Ferrin & Co., Ltd., Wm R.....	52
Dunson Mfg. Co	39	Perron, Gagnon & Co.....	46
Farbanks & Moody	9	Porritt & Sons, Joseph.....	10
Fleese, Jean	3	Porritt & Sons, Limited, Samuel	60
Fleese, Jean (Pulp Stones)	42	Porritt Bror. & Austin.....	6
Fleeming, The B. Wire Co., Limited.....	56	Pulp & Paper Trading Co., The.....	55
Fulton, Geo. E.....	55	Pusey & Jones Co	50
Gardner, George F.	9	Quebec & Lake St John Ry.	8
Gartig, Hugo	305	Reeves Pulley Co.	40
Gilksworth & Sons Co., Limited, Alfred.	12	Rice, Barton & Fales.....	2
Guy Knife Co., Limited, Peter	55		
Holyoke Steam Boiler Works.....	44		

(Continued on Page 8)

THE BLACK-CLAWSON CO.,

HAMILTON, OHIO, U.S.A.

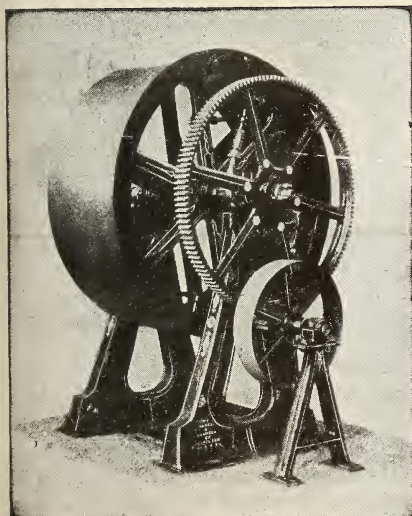
Builders of HIGH-GRADE
MACHINERY for

Paper and Pulp Mills

from new patterns and de-
signs embodying the latest
improvements.

Foot-power Perforators.
3 Roller Ink Mills.
Evaporating and Drying
Machinery.

We Solicit Correspondence.



Honest
Value



Com-
plete
Satis-
faction

MARK OF QUALITY.

DECKLE STRAPS

We are supplying some of the largest and most discriminating users of Deckles in Canada with maximum success.

Read the following letter, just received in reply to a recent enquiry from our Deckle Strap department:—

"Your enquiry regarding deckle straps to hand, and in reply must say that I have used deckle straps made by the best firms in Scotland and in the United States, and also that I have used yours during the past twenty years, and I have always found your deckle straps equal to, if not better than, any of the above makes.

During the past two years your deckles have proven to be **the finest I have ever used.**

I have not experienced any trouble with them.

JAS. D. FINDLAY, Manager,
Joliette Paper Mills, Joliette, Que."

THE CANADIAN RUBBER CO. OF MONTREAL, LIMITED.

HALIFAX155 Granville St.

MONTREAL.. Imperial Bank Building,
St. James St.

TORONTO Corner Front & Yonge Sts.

And at

WINNIPEG, CALGARY, REGINA.
VANCOUVER, VICTORIA.

INDEX TO ADVERTISEMENTS

(Continued from page 7.)

Riordon Paper Mills, Ltd.....	
Ritchie & Ramsay.....	
Roy & Son, B. S.....	
Smith Co., S. Morgan	
Stetson, Cutler & Co.....	
Tippett, A. P. & Co.....	
Union Screen Plate Co.....	
Union Sulphur Co., The.....	
Vogel, C. H.....	
Valley Iron Works Co.....	
Walker, J. R. & Co.	
Wallace, Jos.....	
Waterous Engine Works Co., Ltd	
Wertheim & Co., A.....	
Whittaker, Richard	
Wilson, Paterson & Co.	
Winn & Holland	
Wurster, Dr. C.....	
Young, J. S.....	



This Railway runs through Two Hundred Miles of the **Finest Spruce Forests** in America, through a country abounding in **Water Powers** suitable for Pulp and Paper Mills and other industries, and easy access to the **Steamship Docks** of Quebec.

ALEX. HARDY, J. G. SCOTT,
G.F. & P.A. General Manager
QUEBEC, P.Q.

FOR SALE

Cylinder Paper Machine, 72 inches wide complete from screen to winder, including steam engine, all shafting and pulleys. Ready for selling, replacing by a larger machine. Will sell cheap to prompt buyer. Apply to "Paper Manufacturer," care Pulp and Paper Magazine, Toronto, Canada.

Arthur D. Little

93 Broad Street, Boston
CHEMICAL EXPERT and ENGINEER
SPECIALIST IN
Pulp and Paper making. F

DEAN & MAIN, Mill Engineers
and Architects
Exchange Building, 53 State Street,
BOSTON, Mass.

Examinations, Designs and Supervision of
Construction of Pulp and Paper Mills. Examinations
and Reports on Projects and Water Power
Developments.

GEORGE F. HARDY, M. AM. SOC., M. E.
M. CAN. SOC. C. E.
Consulting Engineer.
Paper, Pulp and Fibre Mills, Examination of
Mill Properties, Water Power Developments.
Mutual Reserve Building, - 309 Broadway,
NEW YORK

"Asbestine Pulp" Filler

Superior to any Clay.
Delivered price on application.
INTERNATIONAL PULP CO.
New York City, U.S.A.

CHARLES E. EATON, JAMES P. BROWNELL,
M. Am. Soc. M. E. C. E.
EATON & BROWNELL,
Consulting Engineers and Architects.
Paper, Pulp and Fiber Mills, Water, Steam and
Electric Power Development, Examination of
Properties, Consultation Reports.
SMITH BLDG. WATERTOWN, N. Y.

C. H. VOGEL

A. M. Can. Soc. C. E. ENGINEER
OTTAWA, CAN.
WATER POWER
Paper, Pulp and Sulphite Fibre Mills

LEA & COFFIN, and H. S. FERGUSON, ENGINEERS.

Pulp, Paper and Chemical Fibre Mills.
Water Power Development and Trans-
mission. Steam Power Plants.
CORISTINE BUILDING, MONTREAL.

A. S. FAIRBANKS, Assoc. Mem. Can. Soc. C. E.
Assoc. Am. Inst. E.E.
H. A. MOODY, B.S., M.E.,
Assoc. Mem. Am. Soc. M.E.

FAIRBANKS & MOODY

Industrial Engineers
Paper and Pulp Mills
Hydraulic Development
150 Nassau St., New York.

J. A. DeCEW, B.A. Sc.

Chemical Engineer.
SUN LIFE BLDG., MONTREAL

Specialist in Soda Fiber and Paper Mill Chemistry.
Patented Processes for Digesting, Causticizing, Evaporation, Recovery.
Consultation. Advice. Reports.

CASTLE, GOTTHEIL & OVERTON

41 Park Row, Times Bldg., New York

AGENTS FOR

Sulphite and Wood Pulp Mills

Dealers in all kinds of Paperstock, Sizing, etc.

Correspondence Solicited.

THE REVISED CANADIAN TARIFF.

As it applies to the pulp, paper, and kindred industries, pulp and paper machinery, and mill supplies will be found in the **Pulp and Paper Handbook of Canada**, which will be published in connection with the Canadian Textile Directory. Ready at an early date. Subscription Price, \$2 payable on delivery. Price is \$3 after publication. Order now and save a dollar.

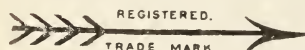
E. B. BIGGAR, Publisher,

Confederation Life Building, Toronto, Canada

JOSEPH PORRITT & SONS HELMSHORE NEAR MANCHESTER FELTS

and JACKETS FOR PULP and PAPER MILL

And all kinds of Woollen, Linen and Cotton Cloths for Mechanical Purposes



Agents for the States and Canada,

F. BREDT & CO., - 240 Water Street, NEW YORK.

Established 1864

Incorporated 1888

J. H. HORNE & SONS CO.,
LAWRENCE . . . MASS.

MANUFACTURERS OF HIGH-GRADE

PAPER MILL MACHINERY

Beating and Washing Engines

"Jordan" Engines

"Horne" Improved Patent Engines

"Cloudman" Cylinder Washers

FOURDRINIER, CYLINDER & WET MACHINES

"Horne" Friction Cutters

Fan Pumps

Rag Knives

Cone Pulley Cutters

Stuff Pumps

Roll Bars

"Horne" Calenders

Calender Rolls

Bed Plates, Etc.

ORDERS FILLED ON RECEIPT

GET OUR CATALOGUE

A. KLIPSTEIN & CO.

34 St. Peter St., Montreal
23 Scott St., Toronto

Sulphate Alumina

China Clay & Bleaching Powder

Auramine—News Blue

All Colors for Paper

Richard Whittaker

VICTORIA GUM AND STARCH WORKS

ARDWICK, ===== MANCHESTER.

INVENTOR AND SOLE MANUFACTURER
OF THE RENOWNED

XX Paper Finish

WHITE GUM

NOW EXTENSIVELY USED AND UNIVERSALLY
ADMITTED TO BE THE

Best Paper Finish

EVER OFFERED TO THE TRADE.

GENERAL DRYSALTER, &c.

Wilson-Paterson Co'y



127 BOARD OF TRADE BLDG., MONTREAL.

Agents for the United Alkali Co. of England

OFFER TO THE TRADE:

Caustic Soda 60° to 78° Soda Ash, Caustic Potash, Sal Soda, Silicate of Soda, China Clay, Rosin size and a full line of Rosins, direct shipment from the south.

Contracts made for regular supplies.

F



VIM LEATHERS

Are specially prepared by oxidation—not "Tanned," and are a perfect hair fibre.

They are impervious to Water of any temperature or Oil, and make the finest CUP FLANGE and U PACKINGS—for Oil, Water or Air; will not burn under friction, and will wear from 3 to 30 times as long as the best Oak Tanned Leathers. Can be used under any pressure, the higher the better their wearing qualities will show.

Can be furnished for any purpose at short notice.

Alfred Haworth & Sons Co., Limited
Mill Engineers and General Furnishers
551 St. James Street, - Montreal.

BOILERS:

HORIZONTAL TUBULAR
VERTICAL TUBULAR
LOCOMOTIVE TYPES

ALL SIZES.

MEDIUM or HIGH PRESSURE

High Pressure Tubular
Boilers from 80 to 250 H.
P. a speciality.

You are particularly re-
quested to send us your
Boiler inquiries.

Write for Bulletin 112.



SALES OFFICES:
ST. CATHARINES
ROSSLAND
HALIFAX
VANCOUVER

THE JENCKES MACHINE Co.,

EXECUTIVE OFFICE
40 Lansdowne St. Sherbrooke, Que.

LIMITED,

PLANTS: Sherbrooke, Que.
St. Catharines, Ont.

THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 4.—No. 12.

TORONTO, DECEMBER, 1906.

{ \$1 A YEAR
{ SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

SUBSCRIPTIONS: Canada, British Empire and the United States, \$1 a year; to Foreign Countries, 5s. a year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publisher's hands not later than the 10th of the month, and, where proofs are required, 15 days earlier. Cuts should be sent by mail, not by express.

E. B. BIGGAR,
PUBLISHER

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

PROPER VALUATION OF CANADIAN PULP.

A correspondent of the "Pulp and Paper Magazine, interested in the Pulp business, is indignant at the way in which Canadian manufacturers allow themselves to become "hewers of wood and drawers of water" for American paper mills. As he rightly remarks, the latter simply have got to have our pulp and they should be made to pay the rightful price for it. In too many cases it has become almost a habit of American agents to depreciate the value and quality of Canadian pulp. Of course this is for their own ends, and has a view to double profits, viz. what they make by buying cheap, besides the extra chance it gives them to undersell

the United States pulp manufacturers, most of whom have a direct connection with the American mills.

He also remonstrates against the needless cutting of the prices of pulp by brokers in order to make sales. Several of the latter have made long-time contracts for pulp, which now they are quite unable to deliver. The moral of the whole matter is, Canadians should realize the enormous value of their assets in pulp, and should not allow it to be under-estimated for business purposes.



BRITISH MACHINERY IN CANADA.

There is a great opening for British machinery in Canada.

The illustrated weekly "Canada" is doing a good work both for the Dominion and the Mother country. It is making them know one another better, and is, as a consequence, going to become a trade-builder for both.

Its issue of Dec. 1st was a special number devoted to the development of the British engineering trade with Canada. Not so very long ago English engineering firms almost entirely neglected Canada, the idea perhaps being that she could obtain all her requirements from across the border.

They are waking up, however, The growing demand all over the world for pig iron and manufactured iron and steel of every kind is exceeding the capacity of every country outside the British Islands. Already the United States and Germany are drawing heavily upon British output and British stocks, and so far as the immediate outlook goes American iron and steel firms will have more than enough to do to supply the wants of their own country. In these circumstances, says Sir Charles M'Laren, M. P., a writer of one of the special articles in "Canada," the position of Canada as a customer for British iron, steel and machinery is one of growing importance. The progress of Canada in population, in the growth of cities, in the construction of railroads and factories, and in the development of her agricultural lands, has made it in some respects the most active and promising of the Empire markets. In railways alone it is estimated that fully a million tons of steel rails will be required during the next five years for projected lines, as well as great quantities of structural steel for bridges and buildings. "It is clear, therefore, that Canada is likely to be in the immediate future one of our largest customers."

An encouraging feature of the situation to-day is the increasing number of British agencies in Canada. There is a good market in Canada for British machinery. People here would prefer to have it if such be in any way possible; and a preference tariff and cheap ocean freights conspire to make getting it very easily possible. What is needed is for the British makers to push their business here and to show that they are desirous of opening up trade relations. In the past they have done too much in

the direction of waiting for orders come to them. The articles in "Canada" show that they now recognize the reality, and are getting ready to use it.



EFFECTS OF THE NEW TARIFF

For a long time past manufacturers and business men of all classes in the Dominion have been looking forward with keen interest, if not anxiety, to the long announced new tariff. It was believed that it would be something more than the average list of customs duties, some higher, some smaller than previously; for the Government had appointed a commission to look into the whole question from all points of view and it was believed that it would make an attempt to frame scientific legislation. As a matter of fact Mr. Fielding's new tariff is a change rather in form than in substance compared with the old one. The most striking feature of the new schedule is the fact that it contains three separate classifications or rates. First there is the British preferential tariff which favors the goods of Great Britain or of other parts of the Empire with which reciprocal trade arrangements have been made. There is then what is called the intermediate, which, while it will remain practically in abeyance for the present, will be used as an instrument for bargaining with countries disposed to make mutually profitable concessions. The third column gives the ordinary or general tariff, which is not greatly unlike except in a few cases, the one which has been in force during the past few years.

So far as the pulp and paper trade are concerned the chief alteration is in cardboard, the general tariff on which

be 25 instead of 35 per cent. Another item affecting, however, more particularly the printing trade, which has called forth considerable discussion is in typesetting or linotype machines, the duty on which is raised from 10 to 20 per cent. The free list, which formerly included all kinds of presses, is now only extended to newspaper presses. The preferential duty on type is now 12½ instead of 13½ per cent. giving a slight advantage to British exporters.

There are a few changes in paper and printing machinery, but they are chiefly of a minor character. Such as are made have a tendency to make things easier for the British manufacturer, the preferential reduction being greater now. It is the case notably in paper-cutting machines. On the whole, however, no violent change has been made.

A small increase of duty is made on paper-bound books, which will help the English trade, and tend to keep out a lot of cheap American editions. The preference on British playing cards is also accentuated, but as these are being made in growing quantities in Canada, the actual trade in that article will not be greatly affected.

Baggage is raised 2½ per cent., which still leaves them several points behind envelopes.



Pulp & Paper Currency

If the proposed reforms of the United States Post Office in connection with the carriage of newspapers be carried out, it may have considerable effect on paper manufacturers. Publishers may have to follow the European example, and adopt very light weight material for their publications. People engaged

in the paper business are becoming interested.



The "Pulp and Paper Magazine" has been interested in the qualities and in the manufacture of wood flour, and has endeavored to obtain further information on these points from Scandinavia, where its production is carried on to a considerable extent. It proves, however, quite difficult to get any information from the manufacturers about the methods for making this commodity, and there do not seem to be, as yet, many outsiders who have any very clear ideas about it. The raw material is saw dust, which is ground either in common flour mills or in mills especially built for the purpose. Even samples are difficult to obtain, for the manufacturers say, whether through patriotic desire to keep its making a monopoly we do not know, that their entire production is sold ahead for four or five years; that they can not take any orders and that consequently it is of no use to send samples.



Canadian farmers who take little or no interest in the export of manufactures should read what Mr. J. S. Larke, Canadian Commercial agent in Australia, has to say in that connection. He puts old facts in a new way. He points out that the export of finished products is simply an improved method of exporting farm products to countries where they could find no market in an ordinary way. An export of a ton of boots and shoes is practically a condensation of ten tons of Canadian farmers' products. And while it would be madness to ship Canadian mutton to Australia or Canadian butter to New Zealand, Mr. Larke points out that every binder sent

out by the Massey-Harris Company to those countries contains a considerable item of Canadian mutton and Canadian butter. In the same way it may be argued that it is foolish to ship away pulpwood representing \$4 or \$5 per cord, to the United States, whose paper mills work it up and get \$25 and \$30 for it.



The old papyrus growing industry of Egypt has been revived after a lapse of about a thousand years, chiefly through the advocacy of Mr. Smedly Norton, the explorer and writer. A large tract of land is now under cultivation, and it is confidently believed that the result will be the production of a better quality of paper than any yet on the market, at a much cheaper price. So long ago as the seventh century papyrus-growing was a staple industry in Egypt, but through neglect the plant ceased to grow. What travellers on the Nile believe to be papyrus is nothing but Nile grass, which is quite useless for the manufacture of paper. Mr. Norton, who has explored Egypt successfully, obtained seed from remote parts of Syria and Palestine, principally from the vicinity of the Sea of Galilee and the River Jordan. Any endeavor to cultivate the plant there would be futile for commercial purposes, as there is no provision for the transit of the reed to the coast in adequate quantities. A specimen of the plant which was successfully raised on the Nile by Mr. Norton has been certified by Mr. C. B. Clarke, of Kew Gardens, to be the true papyrus, and after exhaustive experiments Dr. Querin Weirtz, consulting chemist and analyst to the Paper Makers' Association of Great Britain, has produced pulp which he pronounces admirable for pa-

per-making, and remarks that its adoption is only a question of quantity, obtainable, price, collection and freight.



Forestry and Pulpwood

The Ontario Agricultural College at Guelph is experimenting on bamboo for pulp purposes.

The Temiskaming & Northern Ontario Railway Commission has given a contract for 275,000 railway ties to Cahill, of Bonfield, near North Bay.

In the Federal Parliament a special committee is to be appointed to inquire into the alleged lumber combine in the West, which is said to be charging excessive prices and causing hardship to settlers in Manitoba and the new provinces.

The interim agreement extending the original contract for the publication of school text books expires at the end of the present month. As the enquiry has not yet terminated, a temporary arrangement will probably be made for the supply of books needed until such time as the commissioners' report can be acted upon.

Sir Wilfrid Laurier keeps in mind the importance of forestry to the interests of the whole country. During the debate on the Trent Valley Canal, he expressed the opinion that the distribution through which it would pass was more adapted to forestry purposes than to agriculture, and that it should be held for the preservation of trees, fish and game, rather than for the storage of water, which at least in some measure would mean forest destruction.

Compilers of geographies and other school text books have to keep a sharp lookout these days so as to keep up to date in Western statistics. Richardson, secretary of the Calgary Board of Trade, has written to Galt & Co., Toronto, with reference to the statements concerning Alberta in the new Canadian geography, pointing out grave mis-statements as to population

Western towns. He says the information would have been true fifteen years ago, but not now.

The United States Senate has passed a bill to appropriate \$2,000,000 to set aside two reserves with a total area of 1,000,000 acres for practical forest protection in New England. From this area flow five more or less important rivers, namely, the Connecticut, the Merrimack, the Androscoggin, the Saco, and the Piscataqua, with their important tributaries and enormous water powers; and in the Appalachian Mountains, 1,000,000 acres, situated at the head waters of the James, the Roanoke, the Radkin, the Catawba, the two Broad, the Saluda, and the Chatooga; the Oosa and Chattahoochee, and the Savannah and the Tennessee—this watershed receiving the heaviest rainfall east of the Sierras. The proposed appropriation seems small enough for its purpose, but is looked on as a beginning in the right direction.

Good progress is being made in the Ontario Government's scheme for reforestry. Prof. Zavitz, of the Ontario Agricultural College, who has this work in charge, states that during the past season some twenty "experimental plantations," were established on waste farm lands in Essex, Norfolk, Perth, Waterloo, Lambton, Halton, Simcoe, Ontario and Durham counties, between 80,000 and 100,000 young trees having been planted. In some cases the planting was done on waste sand land, and in others on waste hill sides, the size of the "plantations," of course varying. White pine was used in most cases, about 2,000 trees to the acre being planted. It is hoped that in a few years many tracts of what is now waste land in the older sections of Ontario will be once more furnishing supplies of wood for the farmer, aiding in the reservation of water and otherwise serving useful purposes.

An important merger is announced as having been now completed in the rubber trade. The Canadian Consolidated Rubber Co., Ltd., having a capitaliza-

tion of \$5,000,000 stock and \$2,600,000 forty-year 6 per cent. gold bonds, has taken over the Granby and Maple Leaf Rubber Companies. We understand that Mr. S. H. C. Miner, of the Granby, will likely be president of the consolidated concern; Mr. G. W. Stephens, M. P., vice-president, and Mr. D. Lorne McGibbon, general manager. There is a world-wide boom in the rubber industry, owing to the increasing difficulty of getting at wild supplies, and to the constantly augmenting uses of that material in various industries. The General Rubber Goods Co., which supplies large quantities of raw material to the Canada Companies, has just bought, it is stated immense tracts of rubber land in the Congo from King Leopold of Belgium.

A writer in Appleton's reminds its readers that one-third of all the pulp mills in the United States are in New York State. Wisconsin stands second and Maine next on the list. In 1890 the New York pulp mills consumed 51,966,262 feet of logs. In 1900 they ate up 289,125,600 feet, and the total output of Adirondack lumber in that year was 578,592,440 ft., so that half of the entire cut went into pulp. The record on the Hudson River shows that in 1851 26,500,000 feet of logs, board measure, were sent down from the north woods. The output increased until 1872, when it reached its maximum with 213,800,000 feet of floating timber. This does not include the drives upon the numerous other rivers and streams flowing from the Adirondacks. In 1900 only 56,554,200 feet of logs reached the Hudson River boom, although the demand was much more pressing and the methods of getting the logs out of the woods had improved in many ways. This meant that the State's final source of supply was failing. It may be mentioned that both lumbermen and pulpmen are now drawing a large portion of their supplies from Canada, and so far we have followed our neighbors' bad example in permitting indiscriminate destruction.

PULP FROM FLAGS.

Considerable attention has been drawn to reports of the utilization of marsh flags for pulp making purposes, especially since the formation of the Montezuma Fibre Company for the express purpose of taking the material found growing on the Montezuma marshes near Syracuse, N.Y. The new company holds more than 3,000 acres of this Montezuma marsh land, and the Solvay Process Company about 3,500 acres, which includes about all the marsh land available in what may be called "the Montezuma swamp," between Cayuga and Cross lakes.

The first experiment of the new company with the hitherto wasted flags of Montezuma was conducted in Newark, New Jersey, where a small quantity of the flags were passed through a miniature paper machine with a result so satisfactory that a ton of the flags was sent to a large papermaking mill at Elbridge. A fair quality of paper was the result. Later, at Skaneateles, and later still at the mills of the Ithaca Paper Company, experiments were conducted with success, and good paper somewhat similar to ordinary manilla was made at small cost. Since then the company claims to have made a good quality of boxboard.

The Solvay Process Co. has been using the Montezuma flag paper for making cartoons, saleratus boxes and paper barrels. It was in view of the success of its experiments with these boxes that the Solvay Company decided to buy the great tract of marsh land and to make all of its own paper hereafter.

The crop of flags is harvested in the late summer and mid-winter of each year. After being cut it is left for a few days to dry in the open, like hay. The dry material is then carried by trolley or canal to the mill, where it is baled and stacked. When brought to the mill the flags vary in length from six to ten feet, but are immediately cut into small sticks of four to six inches. The sticks are carried on a travelling belt to the top floor and dumped into a rotary "digest-

er," which cooks them for several hours. This cooking and digesting is done a special process. When the stuff comes out of the "digester" it is pulp and ready to go through the paper mills and come out as wrapping paper or boxboard according to the treatment it gets. It can be bleached to any shades wanted. Also it can be colored with sulphite like any other paper.



SERIOUS PULP CONDITIONS IN NORWAY.

Mr. C. E. Sontum, reporting to the Dominion Trade and Commerce Department, notes a state of things in the Norwegian pulp and lumber trades, which while serious enough, should open the eyes of Canadians. The prices of logs are rising incessantly. It seems to be a fact that the Norwegian forests are not large enough to supply a sufficient quantity of logs for the existing mills, and that those branches of the wood goods trade which are not under existing conditions sufficiently profitable to stand the strain of this severe scramble for logs are doomed to go to the wall. It is stated on authority that the forests of Norway, Sweden, and Finland will not be able to stand the drain to which they have been subjected in recent years.



THE NEW TARIFF.

As it Affects Articles Used by the Pulp and Paper Trades.

The figures in each paragraph refer to the tariff under the British Preferential arrangement, the Intermediate and General or Ordinary respectively. * * *

Hemp paper, made on four cylinder machines and calendered to between .006 and .008 inch thickness, adapted for the manufacture of shot shells, primers adapted for the manufacture of shot shells and cartridges, and felt board sized and hydraulic pressed and covered with paper, or uncovered, adapted for the manufacture of gun wads; free.

Albumenized and other papers and films chemically prepared for photographers' supplies; per cent., 15, 25, 30.

Plain basic photographic paper, barytated, adapted for use exclusively in manufacturing albumenized or sensitized photographic paper; free.

Tubes and cones of all sizes, made of paper, adapted for winding yarns thereon; free.

Union collar cloth paper, in rolls, or sheets, not glossed or finished; per cent., 12½, 15.

Union collar cloth paper, in rolls or sheets, glossed or finished; per cent., ½, 17½, 20.

Strawboard, millboard and cardboard, red paper, felt board, sandpaper, glass flint paper and emery paper or emery cloth; per cent., 15, 22½, 25.

Paper sacks or bags of all kinds, printed or not; per cent., 15, 25, 27½.

Playing cards, per pack, 5c., 7c., 8c.

Paper hanging or wall papers, borders bordering and window blinds of paper of all kinds; per cent., 22½, 32½, 35.

News printing paper and all printing paper, in sheets and rolls, valued at not more than 2¼ cents per pound; per cent., 10, 12½, 15.

Paper of all kinds, n.o.p.; per cent., 15, 2½, 25.

Ruled and border and coated papers, lined papers, pads not printed, papier-mâché ware, n.o.p.; per cent., 22½, 32½,

Papeteries, envelopes and all manufactures of paper, n.o.p.; per cent., 22½, 3½, 35.

Pulp of wood or straw; per cent., 15, 2½, 25.

Matrix paper adapted for use in printing; free.

Boot and shoe patterns, manufactured of paper; per cent., 10, 12½, 15.

Books, viz., novels or works of fiction or literature of a similar character, unbound or paper bound, or in sheets, but not to include Christmas annuals, or publications commonly known as juvenile and toy books; per cent., 15, 22½, 25.

Freight rates or railways and tele-

graph rates, bound in book or pamphlet form; per cent., 15, 22½, 25.

Books, printed, periodicals and pamphlets, or parts thereof, n.o.p., not to include blank account books, copy books, or books to be written or drawn upon; per cent., 5, 10, 10.

Books, viz., books on the application of science to industries of all kinds, including books on agriculture, horticulture, forestry, fish and fishing, mining, metallurgy, architecture, electric and other engineering, carpentry, shipbuilding, mechanism, dyeing, bleaching, tanning, weaving and other mechanic arts and similar industrial books; also including books printed in any language other than the English and French languages, or in any two languages not being English or French, or in any three or more languages, and Bibles, prayer books, psalm and hymn books, religious tracts and Sunday School lesson pictures; free.

Books, embossed and grooved cards for the blind, and books for the instruction of the deaf and dumb and blind, maps and charts for the use of schools for the blind; free.

Books printed by any government, or by any association for the promotion of science or letters and official annual reports of religious or benevolent associations, and issued in the course of the proceedings of said associations to their members and not for the purpose of sale or trade; free.

Books, not printed or reprinted in Canada, which are included and used as text books in the curriculum of any university, college or school in Canada; books specially imported for the bona fide use of incorporated mechanics' institutes, public libraries, libraries of universities, colleges and schools, or for the library of any incorporated, medical, law, literary, scientific or art association or society, and being the property of the organized authorities of such library, and not in any case the property of individuals, the whole under regulations prescribed by the Minister of Customs, provided that importers of books who have sold the same for the purpose men-

tioned in this item, shall, upon proof of sale and delivery for such purpose, be entitled to a refund of any duty paid thereon; free.

Books, bound or unbound, which have been printed and manufactured more than 12 years; free.

Admiralty charts, manuscripts and insurance maps, and album insides of paper, pictorial illustrations of insects or similar studies, when imported for the use of colleges, schools and scientific literary societies; free.

Advertising and printed matter, viz., advertising pamphlets, advertising show cards, illustrated advertising periodicals, price books, catalogues and price lists, advertising almanacs, calendars, patent medicine or other advertising circulars, fly sheets, pamphlets, advertising chromos, chromotypes, oleographs or like work produced by any process other than hand painting or drawing, and having any advertisement or advertising matter printed, lithographed or stamped thereon, including advertising bills, folders and posters, or other similar artistic work, lithographed, printed or stamped on paper or cardboard for business or advertisement purposes, n.o.p.; per pound, 10c., 15c., 15c.

Labels for cigar boxes, fruits, vegetables, meats, fish, confectionery or other goods or wares, shipping, price or other tags, tickets, or labels and railroad or other tickets, whether lithographed or printed, or partly printed, n.o.p.; per cent., 22½, 32½, 35.

Photographs, chromos, chromotypes, artotypes, oleographs, paintings, drawings, pictures, decalcomania transfers of all kinds, engravings or prints or proofs therefrom, and similar works of art, n.o.p., blue prints, building plans, maps and charts, n.o.p.; per cent., 15, 22½, 25.

Bank notes, bonds, bills of exchange, cheques, promissory notes, drafts and all similar work, unsigned, and cards or other commercial blank forms, printed or lithographed, or printed from steel or copper or other plates and other printed matter, n.o.p.; per cent., 22½, 32½, 35.

Printed music, bound or in sheets; per cent., 5, 7½, 10.

Newspapers or supplemental editions or parts thereof, partly printed and intended to be completed and published in Canada; per cent., 15, 22½, 25.

Newspapers and quarterly and semi-monthly magazines and weekly literary papers, unbound, and tailors' and millers' and mantle makers' fashion plates; free.

Adhesive felt adapted for sheathing vessels; free.

Peroxide of soda; soda, sulphate crude, known as salt cake; barilla; soda ash; silicate of soda in crystals in solution; bichromate of soda, nitrate of sodium; nitrate of soda; arseniate, sodium; nitrate of soda; arseniate, narseniate, chlorate, bisulphate, stannate of soda; prussiate of soda; sulphite of soda; free.

Caustic soda (1) When in packages not less than 25 pounds weight each; free. (2). When in packages of less than 25 pounds weight each; per cent., 10, 12½, 15.

Printing ink; per cent., 12½, 17½.

Writing ink; per cent., 15, 22½, 25.

Typesetting and typesetting machines adapted for use in printing offices, and typesetters; per cent., 12½, 17½, 20.

Printing presses, litho presses and type-making accessories thereof, and printers' and bookbinders' folding machines; bookbinders', book-binding, ruling, embossing and paper-cutting machines, and iron or steel parts thereof; n.o.p.; per cent., 5, 10, 10.

Newspaper printing presses of not less value by retail than \$100 each, of a class or kind not made in Canada; free.

Belting, of leather; per cent., 12½, 20.

Belting, n.o.p.; per cent., 20, 25, 27.

Stereotypes, electrotypes and celluloids, for almanacs, calendars, illustrated pamphlets, newspaper or other advertisements, n.o.p., and matrices or copper shells for such stereotypes, electrotypes and celluloids; per square inch, 1c., 1½c.

Stereotypes, electrotypes, celluloids and bases for the same, composed wholly in part of metal or celluloid; n.o.p. and matrices or copper shells for such electrotypes, electrotypes and celluloids; per square inch, $1\frac{1}{8}$ c., $1\frac{1}{8}$ c., $1\frac{1}{8}$ c.
Type for printing, including chases, galleys and slugs, of all kinds; per cent., $\frac{1}{2}$, $17\frac{1}{2}$, 20.
Babbit metal and type metal, in blocks, bars, plates and sheets; per cent., 10, 15,

Phosphor tin and phosphor bronze, in blocks, bars, plates, sheets and wire; per cent., 5, $7\frac{1}{2}$, 10.

Plates engraved on wood, steel, or other metal and transfers taken from the same, engravers' plates of steel, or other metal, polished, for engraving thereon; per cent., 15, $17\frac{1}{2}$, 20.

Stereotypes, electrotypes and celluloids of newspaper columns in any language other than French and English, and of books and bases and matrices and copper shells for the same, whether composed wholly or in part of metal or celluloid; free.

Slate pencils and school writing slates; per cent., 15, $22\frac{1}{2}$, 25.

Asbestos in any form other than ground, and all manufactures thereof; per cent., 15, $22\frac{1}{2}$, 25.

Plumbago, not ground or otherwise manufactured; per cent., 5, $7\frac{1}{2}$, 10.

Plumbago, ground, and manufactures of, n.o.p. and foundry facings of all kinds; per cent., 15, $22\frac{1}{2}$, 25.

Carbons, over six inches in circumference; free.



ENGLAND REVISITED.

(From a Correspondent.)

Readers of "Pulp and Paper Magazine" will no doubt be interested in the impressions of a Canadian revisiting England after an absence of ten years. The first topic of such a trip is naturally the ocean voyage, and the recollection of my case is a pleasant one. The salt of the sea never loses its savor to me, and I can say with Childe Harold:—

"And I have loved thee, ocean, and my joy

Of youthful sports was on thy breast,
to be

Borne like the bubbles onward. From a boy

I wantoned with thy breakers. They to me

Were a delight, and if the freshening sea

Made them a terror, 'twas a pleasing fear;

For I was, as it were, a child of thee,
And trusted to thy billows, far and near."

To me the sea brings life and health when I am physically "run down," and I am not one of those who seek the fastest ship afloat when crossing the Atlantic. If one values the pure air of the ocean, why not take an allopathic dose? On a fast boat the average passenger is no sooner well over his seasickness than he begins to prepare to land; whereas on a slow boat—say, 10 to 12 days—after you get your sea legs you still have a week or more in which to fill your lungs and rejuvenate your blood with air uncontaminated by the smoke of chimneys or the polluting odors that arise from the gehenna of the city.

Desiring to get some benefit from the sea air, and also wishing to see the Manchester Ship Canal, I took passage from Montreal to Manchester direct by the Manchester liner, the "Manchester Shipper." The "Manchester Shipper" is as steady and staunch a sea boat as crosses the Atlantic, and Capt. Howard and his fellow-officers are genial gentlemen as well as careful navigators. This line of steamers has not heretofore catered for the passenger trade, but if the pleasant voyage I had could be taken as a sample there should be a good prospect for this company in combining passenger with freight traffic, because the trip up the Manchester Ship Canal, in fine weather, is of itself worth crossing the ocean to enjoy. This might sound like sarcasm to those who remember the odors of the canal in hot weather a few years ago; but it is due

to the canal and its promoters to say that since the chemical treatment of the effluents of Manchester this trouble has greatly abated, and will no doubt finally be overcome altogether. It is also to be said that no epidemic of fatal sickness has been traceable to the odor of the canal, even when it was most complained of. The peculiar odor referred to was said to be partly due to decomposing coal dust. Whatever the cause formerly, it was scarcely discernible, even when a breeze was absent, at the time of my trip, and a gentle breeze dispersed it altogether. A railway voyage from Liverpool to Manchester is too swift to get more than a glimpse of the scenery; but the passenger up the canal, going at half speed on a quiet sunshiny day finds himself a participant in the sounds as well as the sights of the land, until he is absorbed as a part of its being. The larks rising from every meadow, and singing with that rapture that only an English lark can feel as it soars out of sight above the oaks and elms; the linnet and the wren answering each other from the groves; the pasture fields with well-fed cattle and sheep; the cosy tenant cottages with roses climbing to the thatched roofs and surrounded by those dear little garden patches, where artless combinations of fruit, flowers and vegetables show how near back to the original Eden an English cottager can get in spite of cramped space and slender opportunity—such scenes bring you back to the England your father told you of, sitting upon his knee in the log cabin of a Canadian clearing or in the shack on the Western prairie. Then the little old parish church, buried in ivy to the steeple, and marking the traveler's way at the cross-roads of the hamlet; and beyond, the orchards and groves of oak, and birch, and beech, the old hall or castle crowning the hazy hilltop—these bring us into living touch with that religious and social history of England which will never lose its charm to her sons in the remote regions of the earth.

If you enter the canal in the morning you will have the whole day which to study the beauties of a Lancashire landscape, and as the steam glides silently up this wonderful waterway, the ear as well as the eye can enable the mind to enter into the spirit of the scene. In this way even the busy man on such a trip can realize something of rural England.

(To be continued)



SULPHITE PULP IN AMERICA.

(Contributed.)

The method of manufacturing sulphite pulp at Ausable Forks, N.Y., on Lake Champlain, should be of interest to the Canadian manufacturer, in view of the increasingly vigorous movement in America to check stream contamination by sulphite-pulp wastes, as is well-known being one of the most hopeless agents of pollution known.

The process depends on the action of sulphurous acid applied to the wood in the form of an acid calcium sulphite. The earlier processes are not peculiar. The spruce wood used is barked and chipped, and turned into the digesters of the ordinary way.

To make the acid sulphite used, sulphur is burned in furnaces, the air supply of which is regulated, and the sulphur dioxide thus formed is carried over to a cooler, whence it is drawn through a series of three tanks filled with milk of lime. This is generally designated the "vacuum process." The gas is first drawn upward by virtue of a partial vacuum created in the tanks through the lower tank, where a part of the gas is absorbed; it is then carried to the next higher tank, where it is absorbed by the milk of lime in the third tank. This operation is easily regulated by adjusting the supply of sulphur-dioxide gas and the vacuum in the tanks. Under such a process the lowest tank has the strongest liquor. When it has reached a specific gravity of about 1.0357 (5° Baume, 7.14° Twaddell) it is drawn off, and the tank is again filled with the contents of the tank

ext above, which in turn is filled with the contents of the upper tank. The upper tank is then filled with fresh milk of lime. This process, while simple in its details, is, notwithstanding, somewhat troublesome, and requires careful supervision.

The digesters, filled with chips and liquor, are operated under 90 pounds pressure for about eight hours. At Ausable Forks there are 5 digesters. One of these 44 feet high and 14 feet in diameter, holds 12 cords of chip wood and 12,000 gallons of sulphite liquor; the four others have one-half this capacity. The end point of the digestion process is regulated according to the acidity of the liquor; when this acidity has been reduced below a certain equivalent, the digestion process is complete. A common method is to observe the appearance of a "cooked" odor in the liquor drawn from the digesters. Although this is not an accurate and scientific test, it is an invaluable one and is readily applied by the operator.

When the digestion is complete the contents are blown into a pit, where the liquor is drained from the pulp. The liquor has lost the greater part of its acid, a part going back into reclaimers, and the remainder having become spent in the digestion process. When turned into the digester it was 2.80 per cent. acid; when drained out it is barely acid (about 0.37 per cent.), and is further treated with several times its own amount of water in the washing process. After the pulp has drained, it is washed with fresh water and sifted, washed again, separated from a part of its water, and then run upon the wet machines and screened and fitted in the ordinary manner.

So far, no satisfactory means have been formed for purifying the liquor drained from the newly made pulp nor the water used in connection with the screening and felting of the pulp. Both these liquors are wasted. It is the first, however, which claims attention, as it is composed largely of organic matter in the shape of wood extractives, composed of

"sulphenated lignone bisulphate compounds," and is extremely complex. It is slightly acid, reddish brown, of gummy consistency, and is one of the most troublesome industrial wastes known; its disposal has been a vexatious problem wherever pulp mills have been established.

Samples taken from the digesters at the end of the digestion process at the Ausable Forks mills were found to contain 10½ per cent. of solid material. About 90 per cent. of this residue consisted of organic and volatile matters, while about 5.7 per cent. consisted of calcium sulphate. The liquor has a distinctly acid reaction. It is run from the digesters into the blow pits, where it is diluted to several times its volume in the washing process; as it emerges from the mill and is discharged into the river it is still acid and contains 0.42 per cent. of calcium sulphate, the remainder of the liquor being largely lignin and other organic extractives.

As the liquor is discharged into the stream it is of a bright reddish-brown color, and contains a considerable proportion of the fine wood pulp which has passed through the sieves. Naturally, it utterly destroys the value of any stream into which it is turned.

The difficulty referred to has been overcome in some of the English mills, through a process for the recovery of the discharged materials.—[Ed.]



TRADE ENQUIRIES.

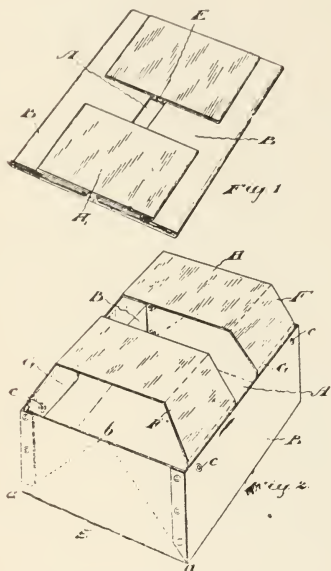
The following enquiries relating to the Canadian trade have been received at Ottawa. The names of the firms making these enquiries, with their addresses, can be obtained upon application to; Superintendent of Commercial Agencies, The Department of Trade and Commerce, Ottawa; or the "Pulp and Paper Magazine," Toronto.

1465. Wood Fibre.—A Birmingham firm wishes to hear from Canadian shippers of wood fibre, or excelsior.

CANADIAN PATENTS AFFECTING THE PULP AND PAPER TRADES.

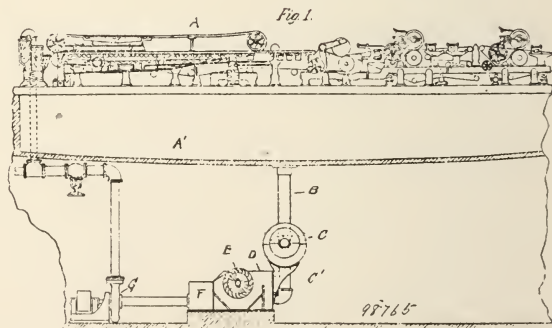
No. 98,911.—Paper Box, David Elliott,
Toronto.

8th May, 1906; 6 years. Filed January
29th, 1906.



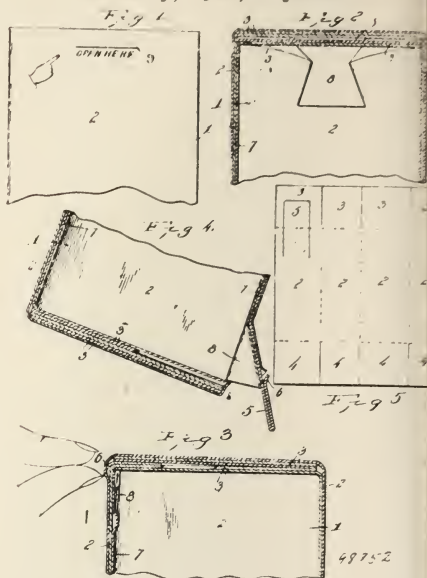
No. 98,912.—Paper Box, David Elliott,
Toronto.

8th May, 1906; 6 years. Filed January
29th, 1906.



No. 98,765.—Process of Reclaiming Pulp
from waste water.—Improved Paper
Machinery Company, assignee of
Howard Parker, of Nashua, N.H.; 1st
May, 1906; 6 years.

No. 98,852.—Paper Box, P. G. Smit
Brooklyn; F. Rhinhardt and J. Hunn
of Brooklyn, N. Y.
1st May, 1906; 6 years.



The box is provided with a discharge
opening, a tonnage adapted to be
outwardly to uncover said opening
when so bent to form the bottom of
discharge chute, a fabric lining arrang
in said box, said lining being cut a
rolled to form a fullness over said ope
ing which when said tongue is pull
outwardly will form the sides of sa
chute, substantially as described.

The process consists in continuous
collecting the stock from the whi
water, constantly reducing the stock
collected to a degree of density definite
related to the condition of the stock f

the head of the machine, and returning the pulp so collected and condensed to the head of the machine.

2. The herein described process for reclaiming stock from white water which consists in collecting the stock from the white water, extracting water from the collected stock to reduce it to any degree of density desired with relation to the condition of the stock fed at the head of the machine, and returning the pulp so collected and condensed to the head of the machine.

3. The herein described process for reclaiming stock from white water which consists in straining the white water, continuously collecting the stock from this white water, and constantly reducing the stock so collected to a degree of density definitely related to the condition of the stock fed at the head of the machine, and returning the pulp so collected and condensed to the head of the machine, substantially as described.



LITERARY NOTES.

In the notice of the 1907 edition of Lockwood's Directory of the Paper Stationery and Allied Trades, the "Pulp and Paper Magazine" inadvertently omitted to state that the price of the book is \$3, and that it is published by the Lockwood Trade Journal Co., 150 Nassau St., New York.

The "Canadian Cement and Concrete Review and Fireproof Building Record" for November is sufficient evidence in itself, if any were needed, that the era of cement for constructive purposes has arrived in earnest. The paper is full of meat for those whose interests lie in any branch of the building trades. It contains several suggestive articles, such as the "Era of Cement Construction," "Concrete Buildings for Canada's National Exhibition," "The Cement Brick Industry," "Who Invented Cement?" as well as a host of timely trade items. It presents a large number of well-done illustrations on good paper. Publication office is at 18 Court Street, Toronto.

The report of the Canadian Forestry Convention, which was held at Ottawa, on January 10th, 11th, and 12th last, at the suggestion of Sir Wilfrid Laurier, is now at hand. The papers read at that important gathering have already received attention, so we need not refer to them except by mentioning that in the report under review, they are to be found printed in full. In addition, however, there is an admirably executed series of photogravures showing typical forest scenes in British Columbia, New Brunswick, in fact all parts of the Dominion. Some of these show the good work done in planting on the Government timber reserves in Saskatchewan, and other parts of the West.

The "Canadian Pictorial" is a new monthly illustrated magazine brought out by John Dougall & Son, Montreal. It is got up to satisfy the tastes of those who like to see the varied life of the world, and especially of Canada, portrayed in pictures rather than wholly by literary sketches. The illustrations in the first two numbers are well selected and well printed, and the publication deserves to have a large sale. Each number contains 24 pages, size 9 x 14 in., and the subscription is only \$1 a year. "World Wide," published also by John Dougall & Son as a weekly reprint of sound literature, recording the current thoughts and doings of the world, is a good companion paper, and the two together make an excellent Christmas and New Year's gift to send to distant friends.

We have a copy in book form of the poems of Douglas Malloch, under the appropriate title, "In Forest Land." By all lovers of Nature, particularly those interested in the forest and its utilities, the book will be warmly welcomed. Few current volumes of verse have a more beautiful theme or one more admirably treated. As the interpreter of the beauty of the forest and the humor and sentiment of the men employed "in the woods" the author occupies a high place in American literature. The Forest, the Camp, the Drive, the Mill and the Lum-

ber Carrier—these are the rich mines into which Mr. Malloch has delved and from which he has extracted so much that is entertaining.

Who has not experienced the exaltation of life in the woods, So far as it is possible for the pen to transmit to paper the beauties of the "Forest Land," Mr. Malloch has done it in the opening pages of this book. In the quiet of the evening, in the moment snatched from a busy day, these verses will bear the reader into that magical and mystical region. He will hear the song of the wind in the tree tops and the drip of water over rocks and will catch glimpses of forest paths flecked with sunshine. As sweet as music, as uplifting as prayer, as cheering as sunlight—so will "The Forest" prove. The carrying of lumber on the oceans and lakes has furnished the subject for a score of poems. The heroic and the humorous have been blended. Nearly all the yarns are from the viewpoint of the man before the mast. These verses will be found as entertaining as the others. The lighter topic is perhaps more evident in the poems devoted to the saw mill than in many other parts of the volume. The book is one of novelties. One of them is the section entitled "Deckloads," many stirring pages being devoted to the ships that carry lumber on the oceans and the Great Lakes. There are several heroic little tales, told always from the viewpoint of the man before the mast.

"The River" is the subject of a score of poems having for their theme the drive, that great annual springtime hegira of the logs from the lumber camps to the mill. It is a business that calls for heroism and affords rich material that has been excellently employed. In "The Boy" Mr. Malloch adds his contribution to a somewhat popular vogue. This boy is a saw mill boy, living in a saw mill town, and in that respect his adventures are unique and his comments interesting. "Runnin' Lawgs," "Ridin' on the Carriage," "Bud Green's Hero," and other poems will certainly reach the boy heart, particularly if it is the boy heart remaining in the man.

In embellishing the book is exceptionally attractive. It is printed in old style type on an antique paper of rich texture with uncut edges. It is stamped in gold and gilt topped. The illustrations are reproductions from photographs of forest scenery and are handsomely printed in tint. The price of the book is \$1.25 a copy, postpaid; and is published by the American Lumberman, 315 Dearborn St. Chicago.



Mill Matters

Heavy rains in Norway last month improved the water supply greatly, and helped the pulp mills.

The J. R. Booth paper mill re-started operations on the 7th inst., the first production being turned out in extra good time.

John Mahoney, an employee at the Riordan Paper Mills, Merriton, Ont., fell off a carrier early this month and broke his collarbone.

John A. Yuill, of Arnprior, who holds a position with the Spanish River Pulp and Paper Co., accidentally shot himself through the foot with a revolver.

Good progress has been made by the Eddy Co. in the installation of three steam generators and engines of 500 h.p. in the pail and industrial fibre-ware shops.

A new era of manufacturing development was opened for Ontario, when power from Niagara Falls was flashed over the wires to Toronto on the 21st ult.

The Spanish River Pulp and Paper Co.'s mill at Espanola, Ont., is running full capacity and turning out 135 tons of pulp per day. The cut last fall was large.

W. F. Best, of the Quatsino Pulp Co., is on a visit to the coast. He is starting a gang to work, getting out timber for mill construction purposes. Machinery is to be put in in the spring. A paper mill is to be built as soon as possible.

Pulp and Paper Handbook of Canada.

Fifth edition published in connection with Canadian Textile Directory. WILL BE READY AT AN EARLY DATE.

This Directory will give full information regarding the pulp and paper mills of Canada, the officers, managers, superintendents, capacity, power used, particulars of machinery, kind of power used, products of each mill, and selling agents, if any. Also all the available information to the time of going to press of new mills projected; paper box factories, paper bag manufacturers, wholesale paper dealers, jobbers, bookbinders, etc.

THE REVISED CANADIAN TARIFF as it affects the pulpwood, pulp and paper industries, pulp and paper machinery and mill supplies will also be given; also the tariffs of the U.S. and Newfoundland. The book will contain every up-to-date feature required of a first class directory, including a complete set of exchange tables.

BOUND IN CLOTH. Type size of page, $4\frac{3}{4}$ x 7 inches. Advertising rates:

One page.....\$25 (£5)

One third page...\$10 (£2)

Half page.....\$15 (£3)

Quarter page....\$8 (£1 12s)

Every Advertiser gets Free Copy of Book, Post Paid. Advertisers' Names printed in black letters in all Classified Lists.

Subscription price to non-advertisers, \$2 to United States and Canada; 8/- to Great Britain, or British Colonies; foreign, 9/-. All books post paid.

E. B. BIGGAR, Publisher,

Confederation Life Building,

TORONTO - - - - CANADA.

The Quebec Government has received the sum of \$75,000 as succession duties on the estate of the late E. B. Eddy, though it claims the amount payable should be \$254,000.

A petition to confirm a resolution of the shareholders of the Dominion Pulp Co., Ltd., of London Eng., and Montreal, will come before the English courts on the 12th prox.

The activity in the building of sulphite mills in Sweden continues. Several have begun operations during the past year, and now we hear of more either contemplated or in course of erection.

Contracts have been let by the Anglo-Newfoundland Development Co. for a portion of the construction work on their mills at Grand Falls, Nfld., but at latest reports, no contracts had been awarded for machinery.

The secretary of the Board of Trade of Prince Albert, Sask., is in negotiation with a concern which proposes to start a pulp mill at that place, there being large supplies of pulpwood in the adjacent districts.

The Canadian Folding Paper Box Co.'s plant at Brantford, Ont., was damaged by fire on the 9th ult. with a loss of about \$2,000. There is talk of removing the business and running it under different management in London, Ont.

A large water tank containing 30,000 gallons, at the "Jumbo" paper mill of the E. B. Eddy Company, Hull, collapsed and crashed through the roof of "A" paper mill and "A" mixing mill, and damaged some of the machinery. No one was seriously hurt.

The location of the mill which the Standard Paper Company will construct for the conversion of peat into paper, and in which Mr. Geo. A. Howell, of the Grip Publishing Co., Toronto, will have a large interest, will be at Pepperlaw, situate on the Canadian Northern, near a peat bog not far from Beaverton.

A special bargain in a cylinder paper machine is announced on page 51 of this issue. This is a first-class machine,

but the owners being very extensive manufacturers, wish to replace it with a larger one. Full particulars may be obtained by addressing "Paper Manufacturers," care of "Pulp and Paper Magazine," Toronto.

Several rumors are travelling broadcast in connection with the sale of the Royal Paper Mills, East Angus, Que., to Mr. Van Dyke and others, coupled with reported negotiations including the Brompton Pulp and Paper Co. in the transaction. So far as we can learn at the time of going to press, no actual deal has taken place.

T. McQuat & Sons, founders and machinists of Lachute, P. Q., have just completed a large extension to their works—a cement block building 100 feet long, 3 flats, to be used as a hardware store and shipping warehouse for their rapidly increasing trade. It is one of the best buildings in the town, and is a credit to the firm.

Douglas & Ratcliff, manufacturers of wrapping and building paper, Toronto, are extending their business considerably in the West. Winnipeg is their Western headquarters, but they have branches also at Calgary and Edmonton. The Winnipeg business will be managed by Peter Christie, Mr. T. Gain, who formerly managed it, returning to the head office at Toronto.

The German card manufacturing company, Peterboro, are ready to begin operations, a large shipment of special machinery manufactured by the Karl Krause Co., of Leipzig, Germany, having been installed by the J. L. Morrison Co., of Toronto, the Canadian agents. The company will make a large variety of fancy cardboard, mounting boards, photograph albums, &c.

On the 5th ult. there was a special meeting of prior lien bondholders of the Imperial Paper Mills of Canada held in London, at which a vigorous discussion took place as to finances. Finally, a committee of four was appointed to represent and protect the interest of the bondholders and holding

owers to be defined by an instrument of trust to be prepared and signed by said bondholders.

Alfred Hawksworth & Sons Co., of Montreal, have been appointed agents for the Crystal Bay Corundum Paper, a new patent sand paper successfully brought out in the United States by a Duluth firm. The abrasive material in this new paper is corundum, and while it is much more durable than ordinary, it can be sold at the price of flint sandpaper, and is made in all the ranges of fineness of sandpaper. Messrs. Hawksworth & Sons Co. are agents for Quebec and the East, and Ontario as far as Toronto, and have also the right to sell this paper anywhere in Canada outside Western Ontario.

The Nepigon Pulp and Paper Co., whose waterpower concessions on the Nepigon River were cancelled by the Ontario Government, submitted the terms of the contract to the Council of Port Arthur for the furnishing of power from the Nepigon River. The Council is considering the offer and awaiting estimates from the hydro-electric power commission. The offer of the company is to furnish high tension power at \$15 per horse power per year up to 3,000 horse power. Above that the company wants \$20 per horse power. The town would also have to build a transforming station costing \$50,000 and guarantee the company's bonds for \$100,000.

Through the courtesy of Ford & Co., we have been put in possession of some very interesting facts concerning the old paper mill at Jacques Cartier, P. Q. It was built by Mr. Jackson, father of the late Dr. Jackson, of Quebec, and started to make paper in August, 1800. About the year 1834 it was rented by the firm of Angus McDonald and Alex and John Logan from the Alsopp family. It had been previously worked by Mr. Curtis, an American, who afterwards had a mill in New Jersey. After McDonald and Logan built the mills at Port Neuf, the Jacques Cartier mills were worked in succession by Messrs.

Peter Smith, Harper, and Peter Ford. They were in successful operation till the year 1857, when they were destroyed by fire, having been burned once before and rebuilt.

In connection with the rumor that the Quebec and Lake St. John Railway is to be absorbed by the Canadian Northern, the Quebec Board of Trade takes the ground that such would not be in the interest of the city or of the Northern district for the following reasons: Because the management has been satisfactory to Quebec in every way, and its policy has always been in favor of the city by directing the traffic of the road to that point for shipment, moderate rates of freight, which have encouraged the erection of sawmills, pulp mills, paper mills and other industries along its line, now in operation, that employ thousands of men; moreover, the company's policy of colonization, etc., by carrying new settlers free of charge, has greatly increased the population of the Lake St. John district, and benefited the city of Quebec.



AMBURSEN HYDRAULIC CONSTRUCTION CO. OF CANADA.

Owing to the rapid growth of the Ambursen Hydraulic Construction Co., of Canada, it has been found necessary to organize a separate Canadian company, and a charter has been issued to the Ambursen Hydraulic Construction Company, of Canada, Limited, with offices in the Coristine Building, Montreal. The special construction of the company is the Ambursen concrete steel gravity dam; but they are also prepared to contract for the installation of bulkheads, flumes, power houses, and general hydraulic construction. The concrete steel gravity dam has stood very severe tests of floods and ice jams, and is in this respect especially suited for Canada. In one notable instance thousands of tons of heavy ice passed over one of these dams, the water being four feet below

the crest and the ice was shoved over it on the dry concrete without doing any damage.

A dam built last year for the Missisquoi Pulp Company, at Sheldon Springs, Vt., a few miles from the border, has stood the test of flood and ice this spring, and took the place of two wooden dams which had been carried away in two successive years, before. The United States Government through its reclamation service is building a concrete steel dam under the patents of this company as a part of the Shoshone project at what is known as the Corbett site, in Wyoming, and that government is now investigating this dam very thoroughly with reference to their general use in irrigation service.

In addition to the many important features referred to above, this dam has also that of being easily constructed in out of the way places, as the amount of concrete employed in its construction is much less than in any other permanent dam. This Canadian company is associated with the Ambursen Hydraulic Construction Company, of Boston, and has the advantage of their designs and experience in this work.



NEW COMPANIES.

As an evidence that European capital is taking increased interest in the Canadian resources, may be noted the organization of the German Development Co., under Dominion charter. Among the incorporators are George Wilhelm Buxenstein, Royal Prussian Counsellor of Commerce, Berlin, Germany; O. E. Talbot, M.P., H. B. McGiverin and Dr. A. E. Barlow. The company will acquire and develop ore-bearing properties, mineral lands, mining rights, woodlands, timber limits, water-powers, etc., and carry on smelting and refining. The capital will be \$1,000,000, and the head office, Toronto.

The Schofield Paper Co., has been chartered under New Brunswick laws to take over the paper, pulp and commis-

sion business now carried on by H. P. and E. A. Schofield, under the name of Schofield Bros., wholesale paper dealers St. John. The capital stock is placed at \$49,900.

The Alpha Chemical Co., Ltd., Berlin Ont., has been incorporated with a capital of \$75,000.



THE MARKETS.

Toronto, December 15th, 1906.

No actual change has taken place since last issue, when an advance in sulphite was reported of about 15c. But the position of the market continues very firm around \$1.90, and the prevailing scarcity renders a further upward movement by no means unlooked for. For pulp of all kinds there is a keen demand and the general tone is strong.

The paper situation is considered satisfactory. Some improvement is noticeable by most manufacturers, and prices are firm.

In the United States, the paper market is satisfactory. The situation in sulphite is very firm. The Burgess mill is again shut down. Enquiries for wood pulp are heavy, but there are no stocks and some of the Canadian mills are said to be offering long term contracts at present prices.



—B. S. Roy & Son, manufacturers of card grinding machinery, Worcester, Mass., inform us that within the last few weeks they have received orders from the following mills for the Roy Patent traverse calender roll grinder: Eastern Mfg. Co., So. Brewer, Me.; Little Falls Paper Co., Newburgh, N.Y.; Rhode Island Card Board Co., Pawtucket, R.I.; United States Finishing Co., Providence, R.I.; Philadelphia Paper Co., Manayunk, Philadelphia, Pa.; United States Finishing Co., Norwich, Conn.; Champion Coated Paper Co., Hamilton, O.; Tai-Shing Paper Co., Hong Kong, China; Jas. Ramage Paper Co., Monroe Bridge, Mass.

BRITISH MARKETS.

Mechanical wood pulps are firm, but the demand for British mills is not very brisk. There is a good enquiry for chemical pulps for next year's delivery. Esparto is very dull. For chemicals there is a good demand at strong prices. Caustic soda, 76-77 per cent. is £10 12s. 6d.; soda crystals, £3 2s. 6d. Recovered sulphur £5.



STEAM VERSUS ELECTRICITY IN DRIVING PAPER MACHINES.

Recently a paper was read before the Swedish Paper Makers' Association by T. D. Nuttall, of Bentley & Jackson, paper mill engineers, of Bury, Eng., on the subject of the relative economy of steam and electricity in operating paper machines. The paper was read by Mr. Nuttall in Swedish, which he speaks like a native. The following is a translation of the paper:

Whether to drive paper-making machines with steam or electricity, is a question which cannot be answered without taking into consideration a number of circumstances, of which the most important naturally are:

(1) Cost of power.

(2) The greater or less suitability of the drive from a mechanical point of view.

In the case of electrical power, definite figures are in every case available, whereas it is difficult to state exactly the cost of driving by steam, for, as is well known, the back steam from the machine engine is used for the drying of the paper, and it is not easy to determine what portion of the heat in the steam is absorbed by the steam engine, and, consequently, how much remains available for the drying of the paper. I will, however, as far as possible, endeavor to treat with this matter. The steam engine may be considered to be a part of the steam range connecting the steam boilers and drying cylinders, and during its passage through the engine a certain portion of the heat in the

steam is absorbed, partly owing to conversion from heat to mechanical energy, and partly by radiation. In order to be able to calculate the amount of heat absorbed in the steam engine, I have lately carried out an experiment with a two-cylinder high-pressure steam engine of the quick revolution type.

The following are the details of the experiment:—

Cylinders—229 mm. diam., 127 mm. stroke.

No. of revolutions per minute—400.

Initial pressure—4.2 kg./cm.² absolute.

Back pressure—1.76 kg./cm.² absolute.

Cut off—55%.

Mean effective pressure—1.65 kg./cm.²

Power developed—30 i.h.-p.

Steam consumption per indicated horse per hour—21.8 kg. steam at 4.2 gk./cm.²

In order to deduce (1) loss of heat due to conversion from heat into mechanical energy:—

Total heat in 1 kg. of steam at 4.2 kg./cm.², reckoned from water at 100° C. = 548 calories.

Number of calories supplied to the steam engine per i.h.-p. per hour = 21.8 by 548 = 11,946 calories.

The mechanical energy developed per i.h.-p. per hour = 75 by 60 kg. M. = 270,000 kg. M.

1 calorie = 425 kg. M.

∴ 1 i.h.-p. measured in calories consumed = $\frac{270,000}{425}$

635.3 cals.

425

That is to say, these 635.3 calories are converted in the steam engine to mechanical work, and represent 5.3% of the total heat supplied to the steam engine.

(2) The loss of heat due to radiation:

To determine this loss, the steam engine was shut down, both the pistons removed, the cylinders and all steam places were supplied with live steam at 3.17 kg./cm.² constant pressure, which was found necessary to maintain the cylinders, &c., at the same temperature as when running. The water condensed

was collected in a closed bottle, and accurately measured as formed. The temperature of the house was 14° C., and during a test of five hours an average of 8.18 kg. steam per hour were condensed—i.e., 8.18 kg. of live steam at 3.17 kg./cm.² pressure, and containing 644 calories were condensed in the steam engine and passed out as water at 134.4° C., containing 135 calories.

∴ The amount of heat radiated
= 8.18 (644—135) cal. = 4,164 calories.

As the steam engine under the same conditions of radiation developed 30 i.h.-p. per hour, it can with certainty be stated that the loss of heat by radiation

$$\frac{4,164}{30} = 139 \text{ cal-} \\ \text{per i.h.-p. per hour} = 139 \text{ cal-}$$

ories, i.e., $\frac{139 \text{ by } 100}{11,946}$
or 1.16% of the total amount supplied to the engine.

From (1) and (2) we find that the total consumption of heat in the steam engine is 5.3% plus 1.16% equals 6.46% of the total heat in the steam supplied to the engine. The remaining 93.54% is thus available for the drying of paper. At the first glance this seems incredible, especially in view of the fact that in the case of high pressure steam engines with 55% cut-off the initial condensation is so much as 10% or 12%, and sometimes even more; but it must not be forgotten that the greater portion of the heat which the cylinder walls receive from the steam during the first 55% of the stroke is given back to the steam during the remainder of the revolution, and causes re-evaporation, which can be seen on the indicator diagram. This translation of heat from the steam to the cylinder walls, and *vice versa*, need not, however, be considered in the above calculation.

The loss of heat owing to radiation varies in proportion to the amount of radiating surface per i.h.-p., and also according to the higher or lower steam pressures which are used, so that the

above results only apply to this specific case, but in no case can there be any great divergence from the above results. The cylinders of the steam engine under test were protected only by planished steel sheeting, and the radiation would have been considerably less if all the heated parts had been properly isolated.

A series of experiments carried out by the National Boiler & Insurance Company, in England, to ascertain the loss of heat in large steam ranges, have shown that naked cast-iron steam pipes condense about ten times as much steam as pipes protected by a first-class non-conducting material, which clearly shows the enormous saving effected by careful isolation.

With coal at 14 kr. per 1,000 kg., and a steam plant which per 1 kg. of coal evaporates 8 kg. of water, the direct cost in coal per i.h.-p. per year of 7,200 working hours is thus only 18 kronor for the driving of the paper machine. This cost is extremely low, but can be reduced still more by the use of superheated steam. In this case the steam is superheated to such an extent that it is on the point of saturation when it arrives at the steam range which supplies the drying cylinders. A considerable superheat, nevertheless, will be required for a certain amount of condensation in the steam range from the boilers must be reckoned with, in addition to the 6.46% loss of heat in the steam engine and it will be found that the steam must be superheated to from 60° to 80° C. according to different working conditions. If this plan is adopted, the cost of superheat represents the cost of driving the paper machine, which will then be much less than even the above-mentioned 18 kr.i.h.-p. per year.

The above-mentioned figures only hold good when the paper machine produces so much paper that it can make use of all the back steam; for if there is an excess of back steam the cost will naturally rise in proportion. Such occurs on those machines which take a large amount of power in relation to their production, such as, for example,

a tissue machine or a Yankee machine making thin papers. In such cases excess of back steam can generally be avoided by employing a compound high-pressure steam engine with a smaller steam consumption. In a mill with a number of small machines, which have a low production compared with the power required to drive them, a central steam generated power station can be arranged, and the power transmitted by means of electricity to the machines,

the back steam from the main engine being used for drying the paper on all the paper-making machines, as far as possible. In this case it must be remembered that there is a constant loss of power all the year of at least 15% by conversion from steam to electrical power.

Regarding both types of drive from a mechanical point of view, it cannot be gainsaid that the electric motor has for a long time been superior, owing to the

HUGO HARTIG

HAMBURG 36.....Neuerwall 42
PARIS 10.....Rue d'Enghien 19
NEW YORK.....Nassau Street 140
GOTHENBURG.....Hertzia Building

Mechanical and Chemical Pulp of all kinds.

Sole Agent for U.S.A. and Canada of

A. G. für Maschinenpapierfabrikation, Aschaffenburg.

Finest Bleached and Unbleached Sulphite Pulps.

AMBURSEN HYDRAULIC CONSTRUCTION CO.,

OF CANADA, LIMITED.

Coristine Building - Montreal.

(Associated with the Ambursen Hydraulic Construction Co. of Boston, Mass.)

Concrete Steel Dam

OF THE
MISSISQUOI PULP CO.,
Sheldon Springs, Vt.

Mid-channel, height 40 feet.

Total length 270 feet (only 180 feet shows in the picture, the remainder being concealed at the left).

Dam specially designed to withstand heavy ice gorges.

Factors of safety are calculated for a 12-foot flood.



IF YOU HAVE A DAM TO BUILD, WRITE US NOW.

fact that by its adoption large variations of speed can be obtained without the use of any mechanical speed changing devices. To obtain these variations in speed when driving with a steam engine, change wheels, or large conical pulleys have had to be employed, which have been the cause of a great amount of trouble and loss of time. Quick-revolution steam engines have, however, of late years, been constructed specially for the driving of paper machines, and these now give a variation of 1 to 10. The advent of the high-speed engine has brought the steam engine drive quite on a line with the motor drive, as far as regards possibilities of speed variation. These steam engines are provided with a centrifugal governor and throttle valve; the load on the engine is, as nearly as possible, constant for all normal speeds, and the large variations in steam consumption are controlled by the governor, which at each alteration in speed arrives at a new point of equilibrium with the valve more or less open. The governor is driven from the crankshaft by means of countershafts and conical pulleys with so great a difference in diameter that by moving the governor driving belt any desired variation in speed can be obtained. These quick-revolution engines must, of course, be constructed in a special manner to stand the great speed—e.g., the whole of the steam engine is enclosed, and every bearing is supplied with a continuous stream of oil under pressure. These engines are now constructed so perfectly, and in such first-class manner as to be very reliable, notwithstanding the high speed, and of late years they have had great success, especially in England.

From what has been said, it is clear that in the majority of cases the steam engine is undoubtedly the cheapest source of power for driving paper machines, also that an electric drive can only be profitable when the electricity is generated by water power which cannot possibly be used in any other direction. As regards the suitability of

the drive considered mechanically, it can be safely asserted that the modern quick-revolution steam engine is in no respect inferior to the electrical motor



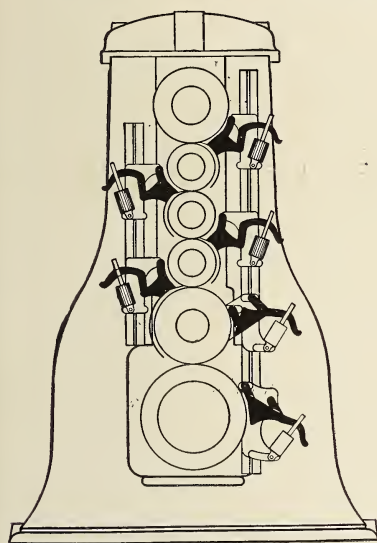
BRITISH PAPER EXPORTS.

The total value of the exports of British paper in September was £172,958, or £3,561 less than in September of last year. The shipments of writings, printings and envelopes were 88,368 cwts., £117,199 (as against 92,436 cwts. and £120,407 for September of last year); hangings, 8,923 cwts., £17,082 (as against 7,498 cwts. and £16,902); bags, 2,030 cwts., £2,296 (as against 2,714 cwts. and £3,273); and other descriptions, 23,881 cwts., £36,381 (as against 23,412 cwts. and £35,937). The value of the exports for the nine months ended September last amounted to £1,524,497, an increase of £73,307 compared with the corresponding period of the previous year.

The value of the shipments of writing, printings and envelopes during the last nine months shows an improvement of £44,719 compared with January-September of last year. Out of the total (£1,000,989) £365,755 worth went to foreign countries and the remainder to British possessions. During the corresponding period of last year £322,245 worth went to foreign countries, thus showing a steady development. A heavy falling off has taken place in the shipments to British South Africa, the loss amounting to £20,608 compared with last year. Other colonial markets, however, increased their demand. Australia, for instance, took £7,089 worth more of writings, printings and envelopes, and British India, Straits Settlements and Ceylon show increases of £7,307, £3,072 and £1,591, respectively. Canada is also buying more largely of British writings, printings and envelopes, the shipments during January-September of this year being £5,568 better than last year, and an improvement of £1,328 is shown in the demand on the part of New Zealand.

DILLON MACHINE CO.

BUILDERS OF PAPER MILL MACHINERY



DILLON DOCTORS
AND FEEDS

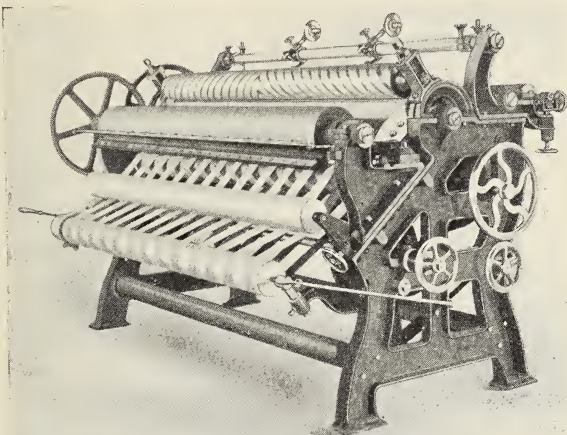
DILLON MACHINE CO.
LAWRENCE MASS.

Beating Engines
Washing Engines
Jordan's Three Sizes—
Single, Double & Triple
Stuff Pumps, with
Dillon Patent Valve
Seating

Wet Machines
Horizontal and Vertical
Stuff Chests
Single and Double Paper
Cutters
Backstands
Plates, Knives and Bars

DILLON
PATENT
DOCTORS
AND FEEDS
MADE IN
CANADA

BY THE
SHERBROOKE
IRON WORKS,
SHERBROOKE, P.Q.



LAWRENCE, MASS., U.S.A.

INDEX TO VOLUME IV.

	Page		Page
Alum Excess in Paper Making....	71	Cushing Sulphite Mill	128, 169, 247
American Paper and Pulp Assn.		Cutting of Immature Trees	180
(Feb. ad. p.)	41, 83	Davey Pulp Mill Re-opened (July	
Amburson Hydraulic Construction		ad. p.)	41
Co.	301	Day in the Woods	3
Anglo-Canadian Trade	81	Death of E. B. Eddy	3
Arctic Canada (Feb. Ad. p.).....	8	"Derb" Shouts Across the Fence...	6
Balata Belting Plant, A Modern ..	226	Dillon Calendar Doctors Made in	
Bleaching Colored Fibres	264	Canada	26
Blue Paper	199	Dominion Pulp Co	14
Booth Secures First Concession,		Driving Machinery Installed at	
J. R.	148	Wm. Barber & Bros. Paper	
British Columbia Knocking	156	Mills, New	18
British Exports of Paper	175	Drowned at Sherbrooke (July ad.	
British Government Should Reduce		p.)	
Postage	162	Dryden Pulpwood Area Leased ..	16
British Paper Imports	37	Eddy, E. B. Co.	6
British Paper Makers Wake Up?,		Eddy Co., Hull's Offer to (June ad.	
Will (Jan. ad. p.)	41	p.)	4
British Paper Trade	268	Eddy, Death of E. B.	3
British Paper Trade with Canada		Eddy Estate, Suit Against the E.	
(Oct. ad. p.)	38	B.	19
British Pulp Markets (Feb. ad. p.)		Electric Power in New York State	
39. (Mar. ad. p.) 43.	284	(June ad. p.)	4
British Machinery in Canada	285	English Interest in Canada	28
British Exports of Paper	306	England Revisited	20
Buckingham, Strike at	250, 267	Esparto, French Views on	13
Calendars (Jan. ad. p.) 45. (Feb. ad.		Esparto Pulp by Bacteriological	
p.)	46	Fermentation	9
Calendar Roll Grinders	112	Exemption of Wood Lots	15
Canada Coating Mills, Ltd.,	113	Expansion in Canada, Remarkable..	1
Canada's Forests, Another view of		Exports of German "News"	
(Aug. ad. p.)	37	Exports of Pulp and Pulpwood ..	27
Canada's Pulpwood and the United		Flags, Pulp from	20
States	235	Ford, Jos. (Fifty Years Making Pa-	
Canadian Forest Policy	6	per) (Mar. ad. p.)	
Canadian Forestry Assn. 30. 70. 178.	200	Foreign Capital in Canada	18
Canadian Pacific Sulphite Pulp Co.	176	Forest Fires	18
Canadian Paper in Britain	258, 284	Forests, View of Canada's	
Canadian Paper in the West of		Forest, Newspaper and The	
England	225	Forest Policy, Canadian	
Canadian Supplies for New York		Forest Reserves Assured, Western.	10
Mills	107	Forest Reserves, A view on	10
Canadian Trade, Working Against..	74	Forest Reserves Bill	1
Case of Self Preservation	53	Forest Resources of Canada	
Cellulose, Improved Method of Pro-		Forests, 105, 135. (June ad. p.)	
ducing	255	Forests to Waterpowers, Relation	
Cellulose, Wonders of	274	of	
Chemical Markets, (Feb. ad. p.) 39.		Forestry Convention... I, 24, 36, 2	
(Mar. ad. p.) 43. (Apr. ad. p.) 42.		Forestry in Quebec	
(Sept ad. p.) 46	136	Forestry and Pulpwood, 29, 55, 85,	
Chemistry in Pulp and Paper Mak-		110, 140, 160, 188, 212, 238, 263, 2	
ing	87	Fort Frances, New Pulp Mill Prop-	
Chicoutimi, Fire at	175	osition at	10
Chicoutimi Wharves, William Price		French Views on Esparto	1
Recovers Possession of	147	Future Supply of Wood Pulp and	
Coated Paper Damages Eyes (Feb.		Paper Stock for United States..	1
ad. p.)	3	German "News," Exports of	
Companies, New, (Feb. ad. p.) 37.		German Rag Industry	1
(July ad. p.) 40. (Aug. ad. p.)		Grand River Pulp Co., Suit Against,	
33; 12, 155, 213, 251, 277.....	302	(July ad. p.)	
Corrugated Paper	116	Handsome Souvenir	1

	Page		Page
Hanson, Geo. E.	32	Norway, Serious Pulp Conditions	
Hanson's Pulp Felts	142	In	290
Harmsworths in Canada, Progress		Ontario Pulpwood Concessions,	
of The	154	(Feb. ad. p.) 45, (Apr. Ad. p.)	
Hint to Paper Manufacturers	200	42,	94
Holyoke Steam Boiler Works	182	Ontario's Power Commission	148
Hull's Offer to Eddy Co. (June ad.		Ontario's Pulpwood Policy	28
p.)	41	Papaya	112
Immature Trees, Cutting	180	Paper Industry Advocated	27
Imperial Paper Mills	214	Paper from Peat, Making	73, 283
Improved Machinery, Results of ...	219	Paper for Bank Notes	199
Indestructible Fibre Co., (July ad.		Paper, Hemp Waste for	79
p.)	10	Paper Makers' Directory (June ad.	
International Paper Co.'s President	143	p.)	45
Is This a Fixed Policy?	260	Paper Makers' Directory of All Na-	
Japanese "Hand-Made" (June ad.		tions	176
p.)	43	Paper Making in China	126
Japanese Papers (May ad. p.)	8	Paper Making Material, New (Aug.	
"Knocking" British Columbia	156	ad. p.)	35
Kraft Brown, Field for (Oct. ad.		Paper Mills of India (June ad. p.)..	46
p.)	38	Paper Stock Market Report (Aug.	
Kraft Brown, Imitations of	246	ad. p.) 47, (Sept. ad. p.) 46,	
Kraft Brown Paper	231, 235, 259	(Oct. ad. p.) 51, (Nov. ad. p.)...	51
Kraft Brown and Soda Fibre	209	Paper Slide Scale, Useful (May ad.	
Kraft Paper	278	p.)	8
Land for the Settler	137	Paper, Tests for Strength of	58
Lands and Mines, Report of the		Paper vs. Rubber Insulation	157
Dept. of	150	Paper Tariffs of the World	119
Laurentide Paper Co.	265	Patents, Recent Canadian, 166, 201,	
Literary Notes	90, 154, 252, 297	266,	296
Lithographers' Strike	189	Patent Universal Pulp Stones	153
Lockwood's Directory	273	Peat, Making Paper From	73
London Paper Merchant Fails	144	Personal, (Jan. ad. p.) ..41, 59, 104,	134
Lumber Outlook of Miramichi (July		Perribonka Pulp Company's Failure	151
ad. p.)	47	Pigeon River Timber Limits	149
Making Paper from Peat	73	Polishing Papers	254
Markets	302, 303.	Pointers for Canadian Pulp and Pa-	
Marriage of Well-Known Paper		per Makers	152
Machinery Manufacturer	177	Porritt, Death of Richard M. (Oct	
Marshall & Co., Old Firm of T. J. ...	272	ad. p.)	38
Merrittton Paper Mills Co.	176	Printers and Publishers Notes	98
Meyers & Co.	82	Progress in Paper Making	241
Mill Matters, 11, 51, 80, 103, 132, 155,		Prohibition, Case for	65
183, (June ad. p.) 45, (Aug. ad.		Proper Valuation of Canadian Pulp.	285
p.) 33; 213, 252, 275,	298	Pulp From Flags	290
Misspec Mills, Engines Removed		Pulp (Jan. ad. p.)	8
From	176	Pulp Markets (Mar. ad. p.) 41,	
Moore & White Speed Changes		(Sept. ad. p.) 38,	256, 284
(June ad. p.)	9	Pulp Markets, British (Feb. ad. p.)	
Moreau Pulpwood Barker	180	39, (Mar. ad. p.)	43
Morrison Co.'s New Building, J. L. ...	196	Pulp Mill Proposition at Fort Fran-	
Municipal Power for Ontario	186	ces, New	164
National Paper Trade Assn.	200	Pulp and Paper Currency, 3, 28, 54,	
New Brunswick's Forestry and Pulp-		84, 109 139, 160, 187, 210, (Sept.	
wood Policy	69	ad. p.) 42; 237, 261,	287
Newfoundland Sacrifice	236	Pulp and Paper Industry of Canada.	19
New Ontario, Possibilities of	165	Pulp and Paper Markets, (Feb. ad.	
New Ontario's Pulpwood Policy ..	91	p.) 38, (Apr. ad. p.) 45, (May ad.	
Newspaper and The Forest	33	p. 42. (June ad. p.) 41, (Aug.	
Northern Sulphite Mills	13	ad. p.) 35,	184
Northcliffe in Canada, Lord	161	Pulp and Paper Mills, Waste from.	75
Norway Pulp and Paper Situation.	95	Pulp Proposition in Prince Albert..	230
Norway's Paper Industry	130, 257	Pulp-Treating Machine	56
		Pulpwood Concessions in Nova Sco-	
		tia	173

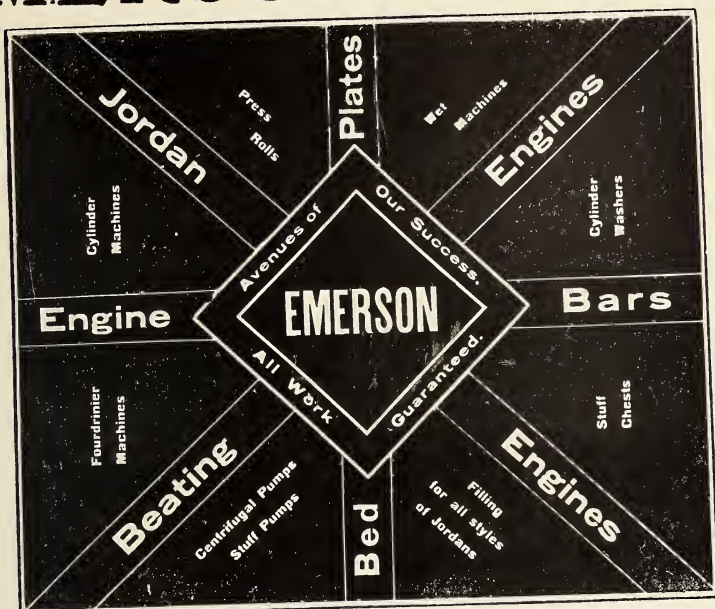
	Page
Pulpwood Concessions, Ontario, (Feb. ad. p.) 45, (Apr. ad. p.) 42,	94
Pulpwood Consumption in the States	86
Pulpwood and Forestry, 29, 55, 85, 110 140, 150, 188, 212 238,	203
Pulpwood Industry	14
Pulpwood Policy, New Ontario	91
Pulpwood Policy, Ontario's	28
Pulpwood Sawing Machines, New..	182
Pulpwood Situation in New York State	129
Quatsino Power and Pulp Co	174
Quebec, Forestry in	27
Quebec & Lake St. John Railway ..	150
Quebec Law Dealing With Settlement & Timber Licenses	62
Quebec Limit	108
Quebec Limit-Holders' Assn.	90
Quebec, Source of Wealth for	2
Quebec Timber Limits, Annual Sale of	179
Quebec Water Powers	93, 159
Rag and Paper Stock Markets, (Feb. ad. p.) 39, (Mar. ad. p.) 42, (Apr. ad. p.) 43, (May ad. p.) 43, (June ad. p.) 43, (July ad. p.) 43,	47
Rainy River Tributaries, Tapping (July ad. p.)	8
Raw Materials for Pulp and Paper.	281
Reaching Out for Canadian Business	181
"Reeves" Variable Speed Transmission	223
Remedies for "Breaks"	191
Repairs at "Soo" Mill	178
Reported Amalgamation of Grand Falls, N. B., Companies	174
Restricting Output of Pulpwood ..	131
Results of Improved Machinery ..	219
Rice, Barton & Fales Co.	182
Ritchie & Ramsay's Coating Plant.	162
Robitaille Limits Not Sold	149
Sawdust, To Utilize (June ad. p.) ..	43
Scandinavian Pulp	258
Science in the Pulp and Paper Industry	111
Sizing of Papers Glazed on one Side Only	133
Sizing Paper, Viscose for	2
Soda Fibre and Kraft Brown	2
Soda Pulp, Manufacture of	2
Soo Industries	2
South African Tariff	1
Spanish River Pulp Mills	2
Speed Changes (Moore & White) (June ad. p.)	
Standard Paper Co. (June ad. p.) ..	
Steam Conditions in New England.	2
Steam vs. Electricity in Driving Paper Machines	
Steam in Paper Mills, Use of	1
Sulphite Pulp in America	2
Sulphite, Advance in	2
Sulphite Process, A New	2
Sulphur Vs. Pyrites	100,
Sweden, Production in	2
Tariff Commission	46,
Tariffs and Canada, Colonial Preferential	
Tariff, South African	
Timber, West Australia	
Toronto Chair of Forestry	
Toronto Exhibition	
Trade Enquiries	104, 226, 252, 278,
Trouble at Buckingham	
Turbine Water-Wheel Tests	
United States Imports of Wood Pulp	
United States Paper Trade	
United States Trade With Canada..	
Uses of Paper, New	
Valley Iron Works Co.	
Valuing Ontario Timber Berths ..	
Viscose for Sizing Paper	
Wall Paper	
Waste from Pulp and Paper Mills..	
Water Powers of Quebec, To Save the	
Will British Paper Makers Wake Up? (Jan. ad. p.)	
Wood Pulp and Paper Stock for United States, Future Supply of	
Working Against the Canadian Trade	
World's Smallest Paper Machine, The	
Zapon (Feb. ad. p.)	

PAPER GAS PIPES.

Paper wheels for railway vehicles have not succeeded in displacing iron ones, neither have paper bottles displaced glass, but paper gas pipes may come into competition with the rolling mills. According to the "Revue de Chimie Industrielle" paper tubes are made by impregnating strips of strong paper with asphalt

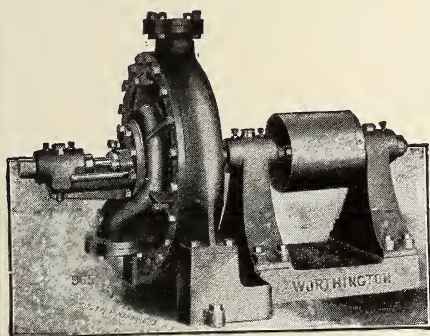
and winding several layers one upon another on a mandrel until the required thickness is obtained. The tube is then subjected to heavy pressure upon the mandrel and the exterior is sprinkled with sand and painted with a waterproof solution. The mandrel is then removed and the tube is finished. The paper tubes are much lighter than iron ones and are said to be quite as tight and durable, whilst being much cheaper.

EMERSON MFG. CO.



LAWRENCE, = = = MASS.^F

The John McDougall Caledonian Iron Works, Limited MONTREAL, P.Q.



Worthington Turbine Fire Pump, working pressure 160 lbs.

BOILERS :

Return Tubular " McDougall " Water Tube, Lancashire, etc.

TANKS :

Water Tanks, Penstocks, Steel Riveted Pipe, etc.

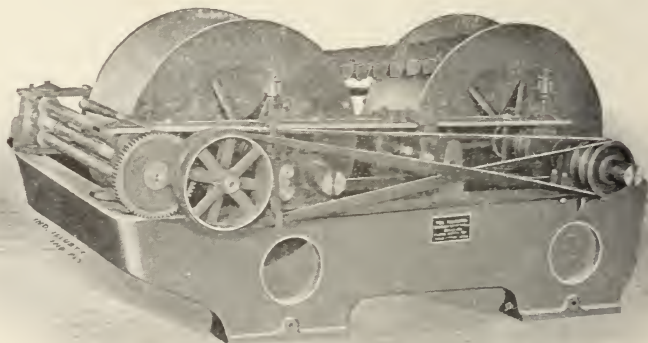
MACHINERY :

Complete Power Plants designed and installed.

Sole Manufacturers in Canada for Worthington Turbine Pumps. " Doble " Impulse Water Wheels and New York Filter Co.'s Pressure Filter.

WAIT!

Don't Turn Another Page
Here It Is



The Much Talked of "THE REEVES" Variable Speed Transmission

The one practical device for regulating the speed of the paper machine.

It everlastingly gets away from the nerve racking old true cone, in whatever form it seeks to disguise itself.

There is absolutely no shifting of belt.

It is made in sizes to drive anything from a winder to a 140" Fourdrinier.

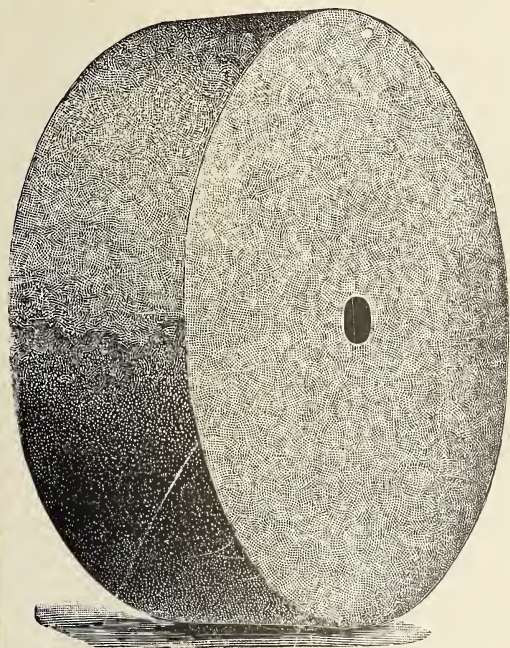
Any speed within its extreme range of variation may be instantly secured and the changes effected without breaking or stopping the paper sheet.

Recommended and adopted by the largest and most progressive paper mills in America and Europe.

Send for Paper Machinery Catalogue To-day

REEVES PULLEY COMPANY,
COLUMBUS, INDIANA, U.S.A.

German Grindstones



Wood
Grindstones,
Wood Pulp
Refiner
Stones,
Edge-Runners
French
Millstones

Artificial Emery and Quarzstones

Stones of all kinds used in Wood Pulp and Paper
Manufactories.

Six Own Quarries at
Wehlen-Zeichen and Langenhennersdorf (Saxony)
Neuland and Goldbach (Silesia) Hoffnung (Bohemia).

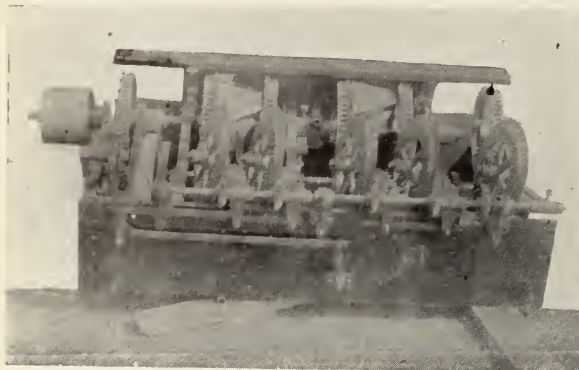
GEBRÜDER ISRAEL

PIRNA-ON-THE-ELBE (SAXONY)

Oldest Factory for Wood Grindstones in Germany.

Established 1866.

The Moreau Pulpwood Barker



Capacity, 3 Cords per hour with 2 men and 6 horse power.

It can be run the year round in dry, green or frozen wood.

The Real Machine which takes only 16 to 18 per cent. discount of the wood and saves money.

WRITE TO-DAY FOR FURTHER PARTICULARS.

The Moreau Barking Machine Co., Ltd.

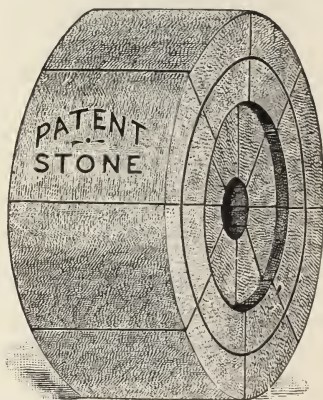
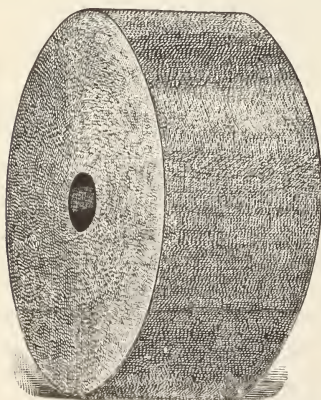
C. MANSEAU, Selling Agent for U.S. and Canada, Mitchell, Quebec.
RELIABLE AGENTS WANTED.

PULP STONES

ENGLISH, GERMAN and SCANDINAVIAN

ALSO THE

PATENT UNIVERSAL



the construction of which gives to it advantages not found in the one piece stone.

Let us tell you about them

JEAN FREESE

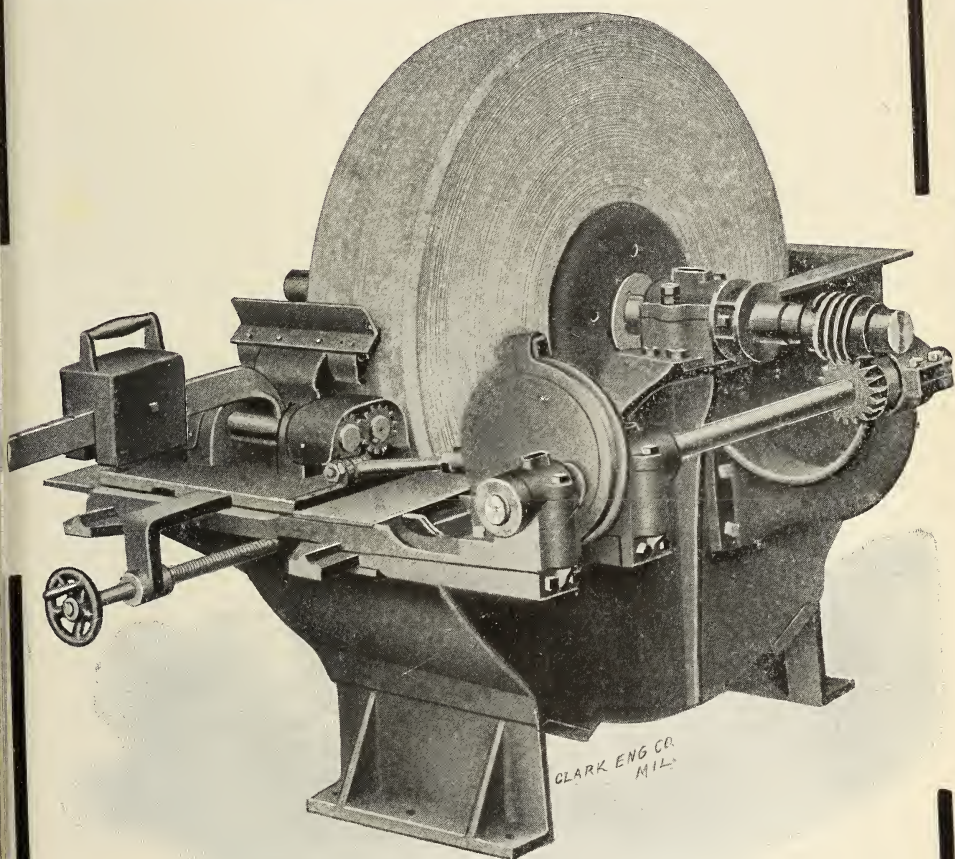
132 NASSAU ST., NEW YORK, U.S.A.

There would appear to be an opportunity for Canada to do a little exporting trade to the United States in pulp boards, but manufacturers on the other

side who have made enquiries here, have come to the conclusion to take the matter up abroad, on the score of smaller cost there.

Valley Iron Works Co.,

Paper & Pulp Mill Machinery Specialists



AUTOMATIC BARKER KNIFE GRINDER.

This machine has a capacity of 150 perfectly ground knives per day, and does not draw the temper of the knife—therefore effects a saving in your knife account. It is the only machine of its kind on the market.

WRITE US FOR PRICES.

Valley Iron Works Co., Appleton, Wis.,

U. S. A.

Holyoke Steam Boiler Works,

INCORPORATED

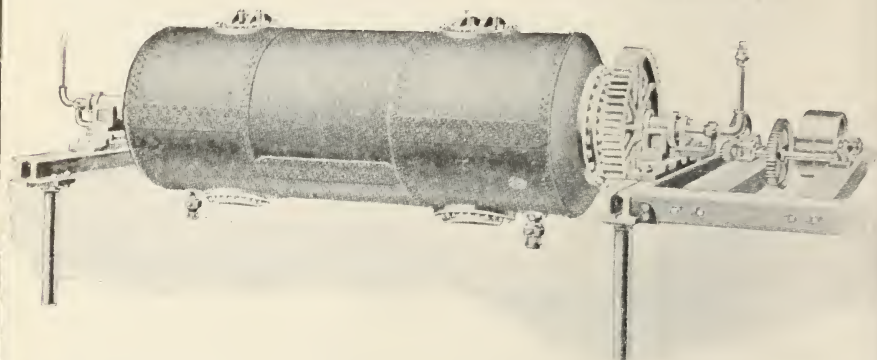
HOLYOKE, MASS., U.S.A.

T. H. SEARS, Mgr.

MANUFACTURERS OF

EXTENSION FURNACES, HIGH PRESSURE HORIZONTAL TUBULAR
BOILERS, IMPROVED DIGESTER, IMPROVED VERTICAL BOILERS.

Improved Rotary Bleach Boilers.



This cut illustrates our improved rotary bleach boiler the result of more than 30 years careful study and experience. The most complete of its kind in the world. Over 500 in use in Canada, United States and Mexico.
We are specialists in boilers and furnaces for pulp and paper mills. Let us know your requirements.

T. J. MARSHALL & CO.

The OLDEST & LARGEST
MANUFACTURERS of

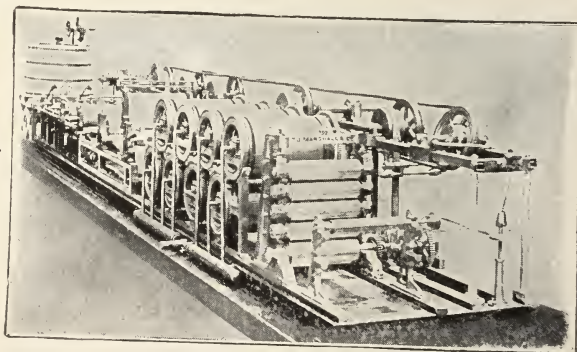
DANDY ROLLS

IN THE
WORLD.

BANK NOTE MOULDS, DECKLE STRAPS, CUTTING MACHINES, ANIMAL SIZING
MACHINES, PATENT DANDY ROLL CARRIAGES, PAPER
TESTING MACHINES, PAPER SCALES, &c.

Established 1792.

By Special Appointment to
H.M. Stationery Office
Telegraphic Address:
"Dandyrolls, London."



By Special Appointment to
H.M. Stationery Office

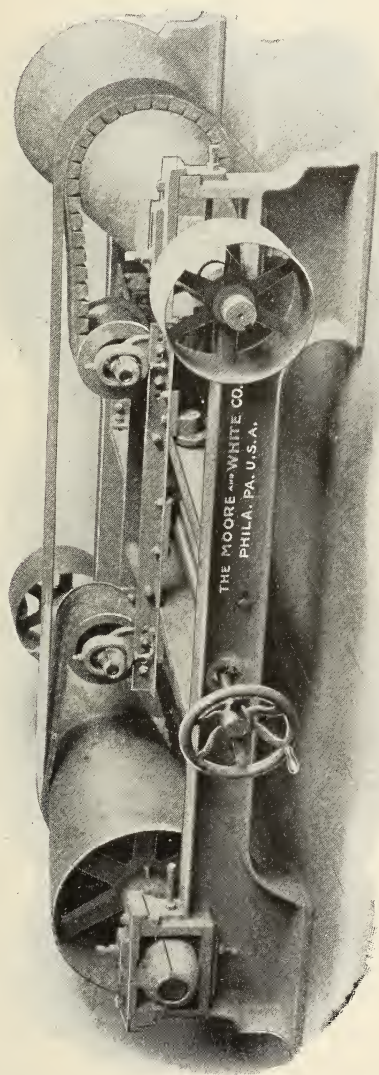
FRONT PERSPECTIVE.

Manufacturers of the **Smallest Paper-making Machine in the World.**

Specially constructed for Mill Testings before Making the bulk, the same results being obtained as from a wide Fourdrinier Machine. Also for Technical Instruction.

T. J. MARSHALL & CO., CAMPBELL WORKS,
Stoke Newington, LONDON, N.

"Moore & White" SPEED CHANGE for Paper Machines.



WIDE BELT.

PERFECT CONTACT.

ANY DESIRED RATIO OF CHANGE.

Absolutely No End Thrust or Tendency Sidewise of
Transformers or Driving Belt.

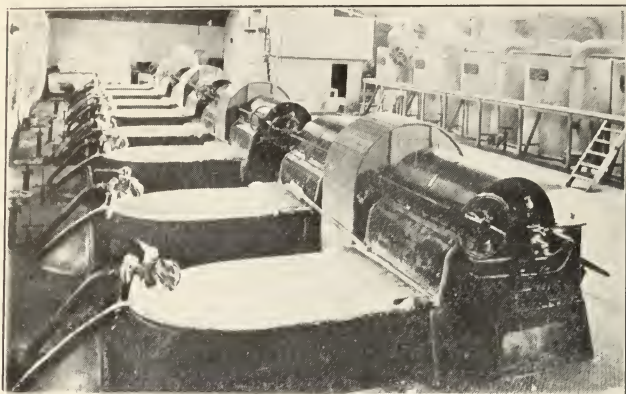
The Moore & White Co.

PHILADELPHIA, U. S. A.

BUILDERS OF PAPER MAKING
MACHINERY

Masson, Scott & Co., Limited

Paper-Makers' Engineers



SPECIALITIES

Patent Machinery
for Bleaching and
Beating.

Strainer Plates,
Closing Strainer
Plates.

Sole British
Agents for

**Robert Dietrich's
Kneader for Pulp-
ing Paper Stock.**

MASSON, SCOTT & CO., LIMITED
CORONATION WHARF, FULHAM,
LONDON, S.W., = = ENGLAND.

500 Twelve-Foot Logs per Hour

Cut into two-foot lengths ready for the barker. That is the ordinary capacity of
**Perron, Gagnon & Co.'s Automatic Pulp Wood
Sawing Machine.**

(Patented in United States and Canada, 1900 and 1906.)

One man alone operating the machine can cut 5,000 logs every ten hours without much exertion. Logs automatically conveyed to the saws, and from the saws to the barker.

A machine installed in the large No. 2 mill of the Chicoutimi Pulp Co. and operating 10 hours per day

Supplies Wood to Twenty Grinders Working 24 Consecutive Hours.

On account of its many advantages, and the fact that it requires only one man to operate, our machine has replaced expensive systems requiring the services of 18 to 20 men.

**ECONOMISE IN YOUR WAGES BILLS, INCREASE
YOUR PRODUCTION, AND SWELL YOUR PROFITS.**

This can only be done in the pulp mill by the use of our up-to-date sawing system. Write to-day for catalogue and particulars.

PERRON, GAGNON & CO.,
Chicoutimi, Quebec,

Patentees and Sole Manufacturers.

A. WERTHEIM & Co.

HAMBURG.

IMPORT AND EXPORT ALL KINDS OF

***Sulphite,
Soda and
Mechanical***

WOOD PULPS

OFFICES AT:



CHRISTIANIA (Norway)	..	Kirkegaden No. 20.
GOTHENBURG (Sweden)	..	Lilla Kyrkogatan No. 20.
MANCHESTER	.. ..	Guardian Buildings (opposite Exchange).
LONDON	.. .. .	77a Queen Victoria Street, E C.
PARIS	.. .. .	Rue de Londres No. 29.
ANGOULEME (France)	..	43 Rue Louis Desbrandes.
LYONS	.. .. .	54 Cours Gambetta.
MILAN	.. .. .	24 Via Solferino
TOLOSA (Spain)	.. .. .	18 Calle San Francisco.
NEW YORK	.. .. .	99 Nassau Street.
ST. PETERSBURG	.. ..	Little Podjascheskaja House, 4. Qu. 16.

Telegraphic Address :

"WERTHEIMO, HAMBURG."

PRIME . . .
CANADIAN CHICOUTIMI,
P.Q., CANADA.
SPRUCE PULP

SUPPLIED BY THE



CHICOUTIMI
Pulp Co.

Production: About 100,000 tons.

SOLE AGENTS:

BECKER & CO.
64 CANNON ST., - LONDON.

MIRAMICHI PULP & PAPER CO., Limited

CHATHAM, N. B.

Manufacturers of High Grade Easy Bleaching

Sulphite Pulp

Suitable for Writing and Book Papers

St. John Pulp and Paper Company,

MISPEC, N.B.

Quality equal to best imported Norwegian Stock.
Highest grade Sulphite for Book, Ledger and Writings,

Address all communications to the Managers,

STETSON CUTLER & Co.
BOSTON, - MASS., U.S.A.

RITCHIE & RAMSAY, Limited,

MANUFACTURERS OF

Coated Paper and Card Board

TORONTO - - CANADA.

MAIN OFFICES - - 84 Wellington Street West.

THE PUSEY & JONES COMPANY

WILMINGTON, DELAWARE, U.S.A.

Machinery for Paper Mills and Pulp Mills

REPRESENTED BY

THE WM. HAMILTON MFG. CO., LTD.,

PETERBOROUGH, ONTARIO,

Who are prepared to Build in Canada the Inventions
Patented in Canada by THOMAS H. SAVERY,

Under Numbers 68,093, 71,746, 72,118, 77,818, 89,114, 89,115;

J. H. GATELY'S Guard-Board Canadian Patent 74,735,

Ejector Vacuum Pumps — Bertrams Limited — Patent.

Wahlstrom's Patent Refiner—Canadian Patent 89,368.

DR. C. WURSTER'S Patented Pulping Machines & Kneaders

NEARLY 300 AT WORK

LARGE PATTERN—Four Sizes.

PULPING-UP 3, 6 and 9 and 12 tons of Dry Papers or Pulp in
24 hours.

POWER—5 h.p., 8 h.p., 12 h.p. and 15 h.p.

SMALLER PATTERN—For Sorted Papers only.

PULPING-UP 2 to 3 tons of Dry Paper in 24 hours. 2 to 4 h.p.
Built in Iron.

For Better Quality Papers, Trough and Propellers made of Brass.

Special Machines for Unsorted Paper.

These Machines do not Grind, Cut-up, or Wet the Fibres, and as the State of Beating and Refining is Unaltered, neither Color nor Sizing being Affected, and Impurities not touched, "BROKE" can be Re-used for the Same Quality of Paper again.

FOR PARTICULARS APPLY TO

**BERTRAMS LIMITED, St. Katherine's Works. The Sciennes, EDINBURGH,
SCOTLAND.** (Sole Makers for Great Britain and Colonies.)

Pulp or Paper Mill Agent.

A reputable English firm, able to do justice to any work it undertakes, is willing to take up the agency of a good Canadian pulp or paper mill for the Manchester district, or the whole of Great Britain. Address, "Pulp," care Pulp and Paper Magazine, Toronto.

POSITION WANTED.

A mill manager, having experience in the manufacture of Kraft Brown both in Sweden and England, is open for an engagement with a Canadian mill. Is able to take charge of a paper mill as manager or assistant manager. Address "Kraft," c/o Pulp and Paper Magazine.

PAPER STOCK MARKET.

Prices of paper stock continue firm, with some improvement in waste papers and a falling off in rope and bagging.

All classes of waste papers are now moving freely. The prices of the lower grades are still low, but are likely to improve during the winter.

Cotton rags are in better demand, with prices about the same as this time last year.

The general advance in the price of raw materials, has not as yet affected paper making stock to any great extent and it is fair to assume that sooner or later paper stock will rise in values proportionately to other material.

Manilla rope after advancing to an abnormally high price, has fallen again as suddenly. Its highest point was 5c. It is now quoted nominally at 3½c., with very few transactions.

Quotations are as follows:—

No. 1 white shirt cuttings.	\$5.50 to \$6.00
Light print cuttings	4.00 to 4.50
Unbleached cuttings	4.75 to 5.25
White shoe clips	4.50 to 5.00
Colored shoe clips	3.25 to 3.75
Domestic white rags	2.25 to 2.50
Blues and thirds	1.25 to 1.40
Roofing Stock	.90 to 1.10
Manilla rope	3.50
Waste papers	.35 to .40
Bagging	.80 to 1.00

THE UNITED WIRE WORKS LTD.

Edinburgh, Glasgow & Newcastle on Tyne.

FOURDRINIER WIRES CYLINDER WIRES

Wire Cloth all meshes, in Brass, Copper Bronze & Steel.

SOLE AGENTS FOR CANADA

ARTHUR P. TIPPET & CO. 8 Place Royale, MONTREAL.

Wires held in stock at Montreal for prompt delivery.

Cable Address,—“Kaolin, Manchester,” A.B.C. Codes, 4th & 5th Editions

CHINA CLAY CO.

JOHN WILLIAMSON, Manager.

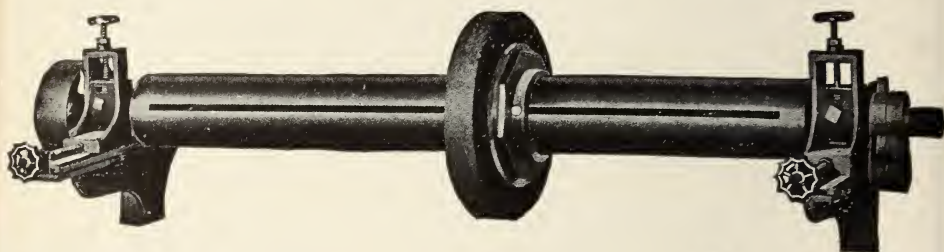
4 St. Annes's Square

MANCHESTER, ENG.

MINES—Ruddle, Bojea, Colchester, South Ninestones, Tronance, St. Austell, Cornwall.

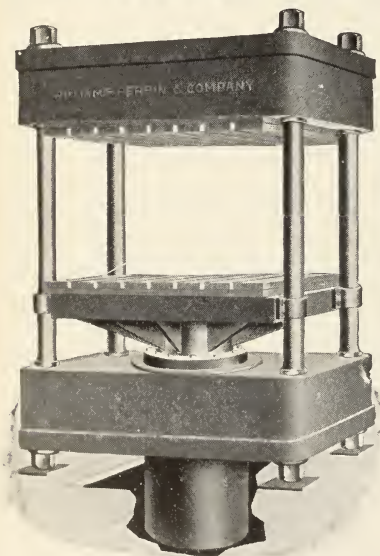
CONTRACTORS TO H.M. INDIAN GOVERNMENT

“The Roy Patent Calender Roll Grinder”



B. S. ROY & SON, - Worcester, Mass. U.S.A.

PRESSES, HYDRAULIC or KNUCKLE JOINT



Heavy Duty Pulp and Baling Presses.

WILLIAM R. PERRIN & COMPANY, Limited,
TORONTO, Canada.

For Sale

Paper Machines,
Steam Engines,
Boilers,
Fourdriniers,
Press Rolls,
Dryers, Calenders,
Pumps, Heaters.

F. H. DAVIS & CO.,

161 Devonshire St.,
BOSTON, - - MASS.

C. D'Oyley Mears & Co.,

PULP and PAPER MILL EXPERTS,
PULP AGENTS and
EXPERIENCED "PULP" ARBITRATORS
Wardrobe Chambers, Queen Victoria Street,
London, E. C.

THE RIORDON PAPER MILLS, Limited.

Merritton and Hawkesbury, Ont.
Merritton Mill—Newspaper, Hanging
Paper, Wrapping Paper and Building
Paper and Sulphite Pulp.
Hawkesbury Mill—Sulphite Pulp.

THE UNION SULPHUR COMPANY

PRODUCERS OF THE HIGHEST GRADE BRIMSTONE ON THE MARKET.

AVERAGE ANALYSIS: { Sulphur, . . . 99.9 per cent.
Organic matter,1 per cent.

Absolutely free from Arsenic, Selenium or Tellurium.

The Largest Sulphur Mine in the World.

CALCASIEU PARISH, - LOUISIANA.

Main Offices, 82 Beaver Street, New York.

Norwood Engineering Company,

FLORENCE, MASS., U.S.A.

Builders of the highest grade of Paper
Finishing Machinery, Rag Dusters, Belt
Power Elevators, etc. Contractors for Fil-
ter Plants of any size, Industrial or Munici-
pal, Gravity or Pressure system.



BELTING.

Contractors to

The Admiralty, War Office, India Office, and the leading Railway
Companies of Great Britain.



BELTING.

IRWELL AND EASTERN RUBBER CO., Limited, Manufacturers of

"LANCO"

BALATA BELTING

This is a genuine article, and is **GUARANTEED** to be equal in every respect to the best
Balata Belting at present manufactured.

Nothing better in this class of Belting can be had, and it is specially recommended for
heavy and difficult drives. Everything in connection with this Belting is of the very best quality

IT STRETCHES LESS THAN ANY OTHER BALATA BELTING.
and is without doubt the most reliable of its kind.

Samples and Quotations may be had from our Works,

ORDSALL LANE, SALFORD, MANCHESTER.

Telegrams—"PARA, MANCHESTER." A B C. Code—5th Edition

**BARKER,
CHIPPER,
PAPER-CUTTER**

MACHINE KNIVES
Of Every Description.

The Peter Hay Knife Co., Limited, Calt, Ont.

The PULP & PAPER TRADING CO.,

TEMPLE COURT BUILDING, NEW YORK CITY.

DEALERS IN

Paper and Pulp of All Kinds.

Prices and Samples on Application.



REGISTERED.

JOHN KNIGHT & CO.,
CHINA CLAY IMPORTERS,

SPRINGFIELD, MASS.

Sole Agents for the ... **L.G.V., W.F.,**  and other Brands of

CHINA CLAY.

L. G. V. is a natural Pure White, free from any artificial tinting.

For Coating, Bleaching or Fine Papers it is unsurpassed.

ESTABLISHED 1878

George E. Hanson

Expert Manufacturer of High-Class

FELTS

FOR SULPHITE AND GROUND WOOD PULP MILLS

Only best of stock is used in making these goods. I am supplying some of the best Mills in Canada, among them being, The E. B. Eddy Co., Hull; J. R. Booth, Ottawa; James MacLaren Co., Buckingham, Que; Nova Scotia Pulp Co., N.S.; Lake Megantic Pulp Co., Lake Megantic, Que.; A. J. Morrill, Nicolet Falls, and others.

A trial order would be appreciated.

HULL WOOLEN MILLS, HULL, P.Q.

STUFF PUMP

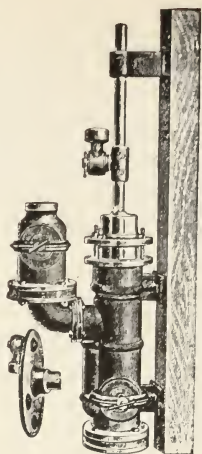
This pump is made in three sizes, 5", 6" and 8".

The valves are made so as to be easily and cheaply replaced and can be got at without using wrench.

We also make boiler feed and other pumps.

Particulars and references on request.

Manufactured
by



T. McQUAT & SON, Lachute, Que.

MAPLE LEAF
STITCHED COTTON DUCK
BELTING
DOMINION BELTING CO. LTD.
HAMILTON CANADA

J. R. Walker & Co.

Importers and
Packers of

**GRADED RAGS, PAPER STOCK,
ROPE BAGGING, ETC.**

WAREHOUSE, 35 COMMON ST., MONTREAL.

Also Manufacturers of Roofing and Building Papers. Leatherboard and Friction Board.
Mills at Sault au Recollet, P.Q.

ATTERBURY BROTHERS, Incorporated.
Importers and Exporters.

Wood Pulp, FOREIGN AND DOMESTIC Rags AND Paper Stock

140 Nassau Street, New York City.

Cable address "AFFECTIVE," New York.

PERFORATED SHEET METALS
IN BRASS, COPPER, STEEL, Etc.

All sizes of perforations and thickness of metals for all purposes

THE B. GREENING WIRE CO., Limited,
HAMILTON, ONT. MONTREAL, QUE.



Beloit Iron Works

Paper Mill Machinery.

Guaranteed the most serviceable and efficient
of any built.

Modern Designs, New Patented Ideas,
Used Exclusively by us.

Cylinder and Fourdrinier Machines.
Tissue Paper Machines a Specialty.

BELOIT IRON WORKS

BELOIT, WIS., U. S. A.



SAW MILL ENGINES

Our Standard Plain Slide Valve Engine is specially adapted to Saw Mill Service.

Substantial, simple in construction, powerful.

Smooth running and requires a minimum of attention. All sizes from 15 to 300 h.p.

We also furnish complete Power Plants for Saw Mills.

Write for bulletin No. 116.

THE JENCKES MACHINE CO. Limited,

SALES OFFICES:

St. Catharines Rossland
Halifax Vancouver

EXECUTIVE OFFICE:

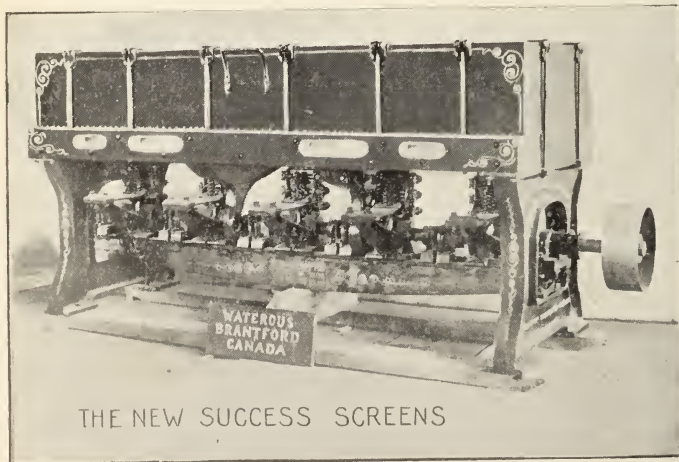
40 Lansdowne St., Sherbrooke, Que.

PLANTS:

St. Catharines, Ont.
Sherbrooke, Que.

We manufacture a full line of

PULP MILL MACHINERY.



THE NEW SUCCESS SCREENS

=====
We repair and
make over
Cylinder
Moulds.

=====
Write for Special
Catalogs.

The Waterous Engine Works Co., Limited
BRANTFORD, - CANADA.

"CHALK WHITE" COATED BOOK PAPER.

The best and whitest coated paper sold. — All regular sizes and weights in stock.

The Cover of this magazine is our Art Litho Cover, stocked in four tints, 2 sizes, 20 x 25 and 21½ x 28½. Samples gladly sent.

CANADA PAPER CO.

LIMITED

Windsor Mills, Que. = Montreal. = Toronto.

DICK'S Balata BELTING.

The Strongest Belt in the World, and specially adapted for Pulp and Paper Making.

LARGE STOCK always on hand.

J. S. YOUNG, = = Sole Agent for Canada.

14 Hospital Street, Montreal.

F

"TURBINE WATER WHEELS"

Giving the **FASTEST**
speed, **GREATEST**
power and **HIGHEST** efficiency
from water at part and full gate,

can be purchased from
S. MORGAN SMITH Co.,
YORK, PA., U. S. A.

REFERENCES:

Montreal - Light, Heat & Power Company.....	25,000 h.p.
Laurentide Paper Company.....	14,000 h.p.
Montreal Cotton Company.....	7,000 h.p.
Sturgeon Falls Pulp Co.....	9,000 h.p.
Chicoutimi Pulp Co.....	7,500 h.p.
Price Porritt Pulp Co.....	2,500 h.p.

Every Grade of Waste for
Paper Making.

R. HOUGH,

LONDON, England.

Agent for Canada and U. S.,

J. CHRISTIE,

5 King St. West, TORONTO, Canada.

FELTS

For Paper
and Pulp
Manufacturers

SAMUEL PORRITT & SONS, LTD.

Bamford Woollen Mills, Nr. Rochdale, England.

JOSEPH H. WALLACE, C.E.

M. AM. SOC. C. E. M. CAN. SOC. C. E.

INDUSTRIAL ENGINEER.

TEMPLE COURT BUILDING, NEW YORK

CABLE ADDRESS "TRIPLEX," N.Y.

MANUFACTURING PLANTS AND POWER DEVELOPMENTS
REPORTS ON INDUSTRIAL PROPERTIES, APPRAISALS, ETC.

A. V. JAASTAD, M.E., CONSULTING STEAM ENGINEER.

BRUNNER MOND & CO., Limited

NORTHWICH, ENG.

LARGEST ALKALI MANUFACTURERS IN THE WORLD.

Soda Ash 58 per cent.

Bleaching Powder 35-38 per cent.

SOLE AGENTS IN CANADA

Winn & Holland, = = Montreal



